


721

THE CONDOR

A Magazine of Western
Ornithology 

Volume XXVIII

May-June, 1926

Number 3



COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

Published Bi-monthly by the Cooper Ornithological Club

Entered as second-class matter May 15, 1925, at the post-office at Berkeley, California,
under Act of Congress of February 28, 1925, Section 412, paragraph 4.

Issued from the Office of THE CONDOR, Museum of Vertebrate Zoology, Berkeley, California.

SUBSCRIPTION RATES

Three Dollars per Year in the United States, payable in advance.

Fifty Cents the single copy.

Three Dollars and Twenty-five Cents per Year in all other countries in the International Postal Union.

COOPER ORNITHOLOGICAL CLUB

Dues are payable in advance on January first for the calendar year: Three Dollars per year for members residing in the United States; Three Dollars and Twenty-five Cents in all other countries. Members whose dues are paid receive THE CONDOR without additional charge.

Send manuscripts for publication to the Editor, J. GRINNELL, or to the Associate Editor, H. S. SWARTH, Museum of Vertebrate Zoology, University of California, Berkeley, California.

Send dues, subscriptions, orders for back numbers of THE CONDOR and for the PACIFIC COAST AVIFAUNA series to the Business Managers, W. LEE CHAMBERS, Box 123, Eagle Rock, California, or HARRY HARRIS, Box 123, Eagle Rock, California.

Endowment Secretary, D. R. DICKEY, 514 Lester Avenue, Pasadena, California.

Issued May 15, 1926

CONTENTS

The Habits of the Swifts in Yosemite Valley (with 3 figs.).....	Enid Michael	109
Avian Gonads and Migration.....	W. H. Bergtold	114
A Report on the Birds of Northwestern Alaska and Regions Adjacent to Bering Strait. Part IX (with 2 figs.).....	Alfred M. Bailey	121
FROM FIELD AND STUDY		
Townsend Solitaire Singing in the Autumn.....	Joseph Mailliard	127
English Aviaries.....	L. B. Potter	127
Ruby-throated Hummingbird near St. Michael, Alaska.....	Bradshaw H. Swales	128
Casualties among Birds.....	Ernest D. Clabaugh	128
Another New Race of Quail from Lower California.....	J. Grinnell	128
The Present Status of the Trumpeter Swan.....	Allan Brooks	129
Injured Juncos Quickly Recover.....	J. Eugene Law	129
Anna Hummingbird Bathing.....	James L. Ortega	130
Contents of Barn Owl Pellets.....	G. L. Foster	130
An Additional Subspecies of Spotted Towhee from Lower California (with 2 figs.).....	J. Grinnell and H. S. Swarth	130
Another Straggler Reaches the Pribilofs.....	Joseph Mailliard	133
Green-tailed Towhee Qualifies in Intelligence Test.....	J. Eugene Law	133
EDITORIAL NOTES AND NEWS.....		
PUBLICATIONS REVIEWED		
Wait's Manual of the Birds of Ceylon.....	H. S. Swarth	136
Simmons' Birds of the Austin Region.....	J. Grinnell	137
MINUTES OF COOPER CLUB MEETINGS.....		
DIRECTORY OF MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB.....		

THE CONDOR

A BI-MONTHLY MAGAZINE OF
WESTERN ORNITHOLOGY

Published by the
COOPER ORNITHOLOGICAL CLUB

VOLUME XXVIII

MAY-JUNE, 1926

NUMBER 3

THE HABITS OF THE SWIFTS IN YOSEMITE VALLEY

WITH THREE ILLUSTRATIONS

By ENID MICHAEL

THE RARE Cloud Swift (*Cypseloides niger borealis*) was noted more often in the Yosemite Valley the past year (1925) than ever before. On the morning of July 13, I happened to be on one of my weekly trips to the rim of the valley when, passing through the mist, I paused to watch the dancing rainbow colors in the veil of Vernal Fall. As I stood watching the play of color, and incidentally catching my breath after the hurried climb, a group of swifts dashed silently into my range of vision. At once I realized that they were Cloud Swifts and of course became all eyes, for I expected them to disappear as suddenly as they came.

The birds were coursing back and forth through the mist, occasionally rising above me and then swooping below me. At times a dozen were in the air at once. In the shadow of the cliffs they appeared dull, sooty black, but when they flashed into the sunlight they often appeared almost white. They looked much larger than White-throated Swifts, but it so happened that the only white-throats in the neighborhood at the time were sailing in the high skies, far above the Black Swifts, and so no true comparison could be had. However, it was noted that the Black Swifts had squarish tails which, as the birds turned and dodged about, were spread into broad fans, while the White-throated Swifts appeared to have keenly pointed tails. To me, the flight of the two swifts was similar. In the larger swift the wild, erratic dives and leaps were somewhat subdued, the tilting from side to side less violent; but there was not the slightest suggestion of leisure. The birds did not hurry away as I expected, but continued to sail back and forth across the canyon. Sailing through this heavy mist-filled atmosphere they could not have been feeding. Was this, then, their method of bathing?

At times, swifts were below me so that I could look down upon their backs, at other times they rose high so that I could view them in silhouette against the sky. The wing twinkle of these birds was very like that of the White-throated Swifts; but it was noted that while they flew in a general company they were also decidedly set apart in pairs. A group of sailing White-throated Swifts mingle more freely and more confusingly. These flying pairs of Cloud Swifts kept within a few feet of one another and often they almost touched wings. Only once, however, were birds actually seen to embrace in the air, and on this occasion they only clung together for an instant. White-throated Swifts we have seen cling together and pin-wheel down through the air for a distance of five hundred feet.

While I was visiting with the swifts I was joined by one of my party and together we watched the birds. With our eyes following two of these fleeting birds we were amazed to see them dash through the mist and come to perch on the perpendicular

face of the wall ten feet from the fall. While studying these two birds we discovered five more clinging to the wall. Some of these birds remained motionless for many minutes, others kept coming and going. Occasionally a pair of birds would hurtle out of the mist together and, coming to the perching wall, they would alight one above the other, perhaps several feet apart; then the lower bird would scurry up the wall to a point on a level with the higher bird, and here the pair would cling motionless and silent for many minutes. At one time there were four birds equidistant and on a perfect level. Occasionally birds coming to the wall would utterly disappear. At first we thought that they were diving into a crevice, but finally we came to the conclusion that they were simply coming to perch behind a projecting ledge. For thirty minutes we stood watching the birds, and in all these many minutes not an uttered sound was heard. This speechless racing through the air would alone set the Black Swifts apart from the white-throats, who are always very noisy in their games of aerial tag.

Climbing on, we came to the railing at the top of Vernal Fall. Down below us the swifts still sped their erratic way through the mist-filled atmosphere. Following with our eyes a pair of birds that dashed across the canyon on a level with us, we discovered a new perching wall. This wall was also sheer, moist and shaded. Across the face of this cliff was a narrow ledge from which ferns hung. The birds coming to perch usually alighted just above the fern ledge. Before leaving they would creep rapidly upward a few feet, fall backward into a sweeping turn, dropping several feet before their wings would twinkle into action. One by one we watched the birds drop off from the wall, and when the last bird was gone we looked off down the mist-filled canyon; then we realized that the Black Swifts had left the neighborhood, vanished as mysteriously as they had come.

A week later, after a great cloudburst in the back country, we again visited Vernal Fall. A mad, muddy torrent swept over the lip of granite, and the lower gorge was fairly choked with fleeting mist. We were much surprised to find the swifts present again, dashing through the heavy spray to perch on the wet wall. We learned nothing new this trip. The heavy mist discouraged any lengthy visit with the swifts, and besides, we wished to have a look at the plunging Nevada Fall.

Our next visit to Vernal Fall was on July 27. The swifts were still present, apparently no less in number. The water of the fall had receded much during our week's absence, and now the mist was thin and vapory. Birds were coming and going as on the occasions of the previous visits. They were perching on the same wet wall beside the fall, and a few were actually clinging to the wall directly behind the falling curtain of water. From the distance of fifty yards the birds appeared to stick as limpets do to the wet rocks of a sea shore. Mr. Hugh Jedell, who was with me on this occasion, produced a pair of powerful binoculars. With the aid of the glasses the swifts could be more clearly seen; they were not now sticking to the wall as limpets, but their bodies were held slightly away from the wall, with not even their tails touching. The position they held on the wall gave them the appearance of being slightly sway-backed. Today a few of the birds were perched well up on the wall and near where the waters of the Merced plunge over the lip. By climbing to the top of the fall we thought that we might, by leaning well out over the railing, get a close view of a bird. When we tried this, however, we found the wall slightly overhanging and the birds hidden from view.

The great step over which Vernal Fall tumbles is broken in such a manner as to leave a dark cavern, or tunnel, through which one may crawl. Following the steep angle of this tunnel one drops about fifteen feet to come again into the light of day on a narrow ledge, but a few feet from the falling water. Taking advantage of this

tunnel we were able to approach within twenty feet of a perching swift. The fact was verified that the bird did not actually hug the wall. His strong toe nails were hooked to some tiny support and his entire tarsus rested firmly against the wall, thus holding his body and tail free. Silver-tipped feathers on the crown of this bird marked out rather obscure superciliary stripes; otherwise there were no apparent contrasting colors. The large dark eye of this bird was deep-set and had a look of keen intelligence. The beautifully rounded head set well on the body, and somehow there was something about the bird strangely remindful of a sea-lion.

From our perch on the narrow ledge we could see many swifts clinging to the wall. Some were below us, others were straight ahead and behind the curtain of falling water. When our near neighbor fell backward from the wall and took to twinkling wings we left our aerie and climbed back to safer footing.



Fig. 32. CLOUD SWIFT CLINGING TO THE STEEP WALL BESIDE VERNAL FALL. DRAWN FROM LIFE.

Having had such close-up views of the Black Swift clinging to the wall, and after studying his pose and his peculiar manner of clinging to the wall—sway-backed, with his tail held free—the principle of his unusual mode of locomotion on steep surfaces began to dawn on me. My thoughts went back to White-throated Swifts that I had previously had opportunity to study, and it seemed to me that I now understood why it was that they could travel so well up a vertical wall, or across the under side of a horizontal surface, while they were helpless in going down a vertical wall and greatly handicapped on the level. The picture which I now had in my mind would also seemingly explain the swift's inability to rise from the ground. The diagram (fig. 34) accompanying this article is an attempt to picture graphically the idea that came to me that morning at Vernal Fall.

And now something of my experience with the White-throated Swift (*Aeronautes melanoleucus*): Twice have I had young of this species in my possession. The first one fell untimely from his crevice home and was too young to fly. The second one

was a mature bird but probably a young of the season. This second was found awkwardly scurrying about on the ground as though crippled. An examination, however, disclosed no injury, and so the bird was taken into a broad meadow and tossed into the air. Twinkling wings soon carried him out of sight and thus ended my experience with swift number two.

Swift number one I managed to keep alive for ten days, and it was from this bird that I got some notion as to how swifts behave terrestrially. This captive swift slept much of the time, but during his wakeful hours he was a very active bird: shoving and flopping along on his breast he could move rapidly. He was kept in a wooden box with a screened cover, where there were folded flannels into which he could snuggle away to sleep. When awakened he would set out at once to explore his box. He could crawl up the vertical wall of the box without the least difficulty, and one of his favorite stunts was to race about, back down, on the under side of the cover screen. This screen was ordinary mosquito-proof netting. When the screen cover was removed he would scurry up the wall of the box and topple headlong onto the floor.



Fig. 33. WHITE-THROATED SWIFT, SHOWING HEAVY, HOOKED CLAWS IN USE.

No sooner had he hit the floor than he would begin to skid about on his breast, using his feet as propellers. He had a fancy for dark cracks, and if he should find such a place he would surely disappear. Best of all, he loved to crawl up one's sleeve to snuggle warmly under one's arm. He had very strong feet and claws like a mammal. When attached to one's garments he clung tenaciously, and each hooked toe nail had to be pried loose before he could be removed.

From my observations of the captive swift, and of White-throated Swifts in general, I got the notion that: should the crevice selected by a colony of nesting birds be approximately level the birds on entering the crack would turn back downward to scurry across the ceiling, but should the crevice have a steep upward pitch the birds would be equally at ease on either ceiling or floor of the crack. Also, I am inclined to believe that where available the upward pitching crevice would always be selected, for such a site would give the departing birds added momentum as they plunged into the air.

The terrestrial locomotion of the swift, its position and movement on surfaces of different inclination poses a problem, a solution of which is here offered: The tarsus of the swift is assumed to be permanently bent at a right angle to the leg, without play, functionally if not anatomically, at the tibio-tarsal joint. The thigh joint is assumed

to be similarly fixed. The reasons for these assumptions will be set forth hereafter. These assumptions granted, the swift may be represented as a block of wood furnished with a hook (corresponding to the bird's claws) by which it may be attached to a surface. The behavior of such a block as shown in the diagram (fig. 34) should be the same as the behavior of the swift in analogous positions.

The greater weight of the swift's body is forward of the heel of the tarsus; therefore the weight of the body in relation to the toe hold is such that when the bird is in

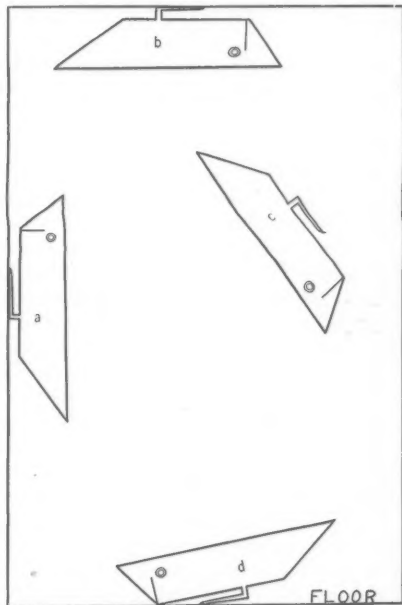


Fig. 34. DIAGRAM TO HELP IN ACCOUNTING FOR BEHAVIOR OF WHITE-THROATED SWIFTS IN DIFFERENT POSITIONS. SEE TEXT.

a natural position on a steep incline, or on the under surface of a horizontal plane, this weight brings the principle of leverage into play, causing the greatest pressure to bear on the heel of the tarsus. In the case of creepers and woodpeckers it is also the principle of leverage that makes it possible for them to tread up a vertical surface or to progress on the under surface of the horizontal; but here the pressure is not thrown on the heel of the tarsus, but rather on the third leg of the tripod in the form of stiff tail feathers.

In figure 34, *a* represents the swift walking upward on a perpendicular surface; *b* represents the swift traversing a ceiling surface. In both cases the weight of the swift's body is thrown on the ankle, or heel joint of the tarsus, the strong, rat-like claws are securely hooked, and the full length of the tarsus rests against the surface. The letter *c* represents a swift that has attempted to come down a vertical wall, and *d* represents a swift on a level surface. In both *c* and *d* the power of leverage in

favor of the swift's locomotion is nullified. Now, a claw on the heel of the tarsus, functioning as a toe, would enable the swift to maintain its balance in a downward course, or even on a level surface; but lacking such a handy attribute the swift must pitch forward when caught in such positions. The fact that the swift does pitch forward when on a level surface would seemingly account for this bird's inability to rise from the ground as do ordinary birds.

Yosemite, California, January 28, 1926.

AVIAN GONADS AND MIGRATION

By W. H. BERGTOLD

I HAVE VOICED my conviction, in a previous communication (Condor, xxiv, May, 1922, p. 82) that a large amount of valuable data is lost each year through the failure of collectors and preparators to utilize every mensural character of a freshly collected bird. The following contribution is based on an endeavor, made by myself during the recently past few years, to be consistent with this conviction. The data here published form a small but real addition to avian biology, and they have been gathered with ridiculous ease and with the aid of only a little extra equipment, paraphernalia which have served for both table and field purposes. This simple addition to a collector's outfit has been described in the above mentioned prior communication. Beginning in 1916, all male birds collected by me have been utilized to furnish the usual measurements of external characters, and have also contributed the body weight and the weights of the gonads.

The periodic hypertrophy and atrophy of birds' gonads has long been well known to collectors and to students of avian anatomy. Nevertheless the very remarkable increase in size of a bird's spermaries each spring does not cease to be a startling phenomenon; and yet, so far as I have been able to learn, nothing has ever been published which shows just how great this increase may be, when measured by some definite standard. A determination of the extent of this increase is not only of biological value *per se*, but it may shed light on other difficult problems in ornithology.

Table No. 1 gives the body weight and the combined gonads' weight of fifty-eight bird individuals, a series embracing forty-five different species; also the date of collection, the proportion of gonads' weight to body weight, and the "fold" increase (when possible to compute) in weight, of the active over the resting glands.

It is self evident that a considerable period of time is required for the change from complete atrophy (inactivity) to full hypertrophy (activity), and that the season of this period will vary somewhat, according to latitude, altitude and species. It is assumed that, for *most* of the species listed, and occurring in and about Denver during the nidification period, the active gland increase occurs from April to August (inclusive). However, it is more than probable that this does not hold true with such species as the Magpie, Clark Crow, Chickadee, Great Horned Owl, and Screech Owl, some of which may breed as early as February. This fact must be considered in the conclusions to be drawn from the data herein submitted.

The date of collection of a given specimen is recorded because it permits one to judge whether or not the bird had the maximum gonad weight attainable in the breeding period. It is obvious that one must judge, concerning this condition, largely by the date. Twenty-one of these fifty-eight birds exhibited spermaries so small that

they could not be weighed. This extreme shrinkage, found during the non-breeding season, is well known, has often been commented upon, and is frequently a source of error in "sexing" the specimens collected in that season. The difficulty of weighing gonads under these circumstances was not due to the lack of a balance sufficiently delicate to estimate such small quantities, but to the fact that one could not dissect out the minute glands and still be certain that no adventitious tissues were included with the gonads. All these twenty-one specimens are listed as having "plus or minus" gonad weights. However, in attempting to weigh the glands of these twenty-one specimens it was definitely established that every pair of these gonads weighed less than one milligram ($3/200$ grain + or -).

In weighing ponderable gonads it was done as soon as possible after the collection of the specimen, and only after the glands had been carefully and thoroughly freed of accessory organs and tissues.

In order to determine the relation in weight of the resting to the active gland, and the "fold" increase of the gland from minimum atrophy to maximum hypertrophy, it was of course necessary to have the gland weights in both these stages; unfortunately I have been able to collect but six species for which I have secured these minima and maxima, namely, Mourning Dove, Long-crested Jay, English Sparrow, Virginia Warbler, Pigmy Nuthatch and Robin. In view of this dearth it became necessary to find, or to arbitrarily establish, the resting gland weight for the species in which this was unknown, but for which the maximum weight had been recorded. This was done by *assuming* that the resting gonads of most (if not all) of these species had a weight of one milligram.

If it be held that the twenty-one "plus or minus" specimens had resting glands weighing one milligram (which is in fact much in excess of the actual weight) and these specimens then averaged with nine others showing varying ponderable gonads during the non-breeding season, we learn that the combined thirty specimens exhibited an average of twenty-eight milligrams as the resting gonads' weight. I am convinced that most, if not all, avian gonads shrink in the middle of the non-breeding season to negligible weights and I therefore feel that all of the above mentioned nine specimens were far from the stage of complete gonad inactivity. Such a thing as belated nestings could easily account for an unexpectedly heavy spermary weight in the fall.

I am sure that seven hundred milligrams, as found in a Clark Crow in October, does not represent completely resting spermaries. Therefore the columns of body-weight to gonad weight, and of gland increase in "fold", have been constructed on the assumption that the completely resting glands do not weigh more than one milligram; except in the cases where the glands were weighed in both the non-breeding and the breeding periods, when, of course, these data were utilized. If the reader chooses to disagree with this assumption, then the figures given in these two columns can be divided by twenty-eight, which will give estimates based on the idea that the resting glands at low tide of activity weigh twenty-eight milligrams. This will not change the conclusions of this study; it merely displaces the levels of comparison*.

Even a casual study of Table No. 1 reveals some interesting, and withal startling, facts. Thus the two resting gonads of a Ferruginous Rough-leg Hawk weighed but $1/57430$ of its body weight, while the spermaries of a Virginia Warbler taken close to, or at, the height of breeding weighed $1/19$ of its body weight, and in the resting period this warbler's gonads weigh but $1/8500$ of the body. From another point of view it can be said that this warbler shows germinal glands which increase five hundred

*I am greatly indebted to Homer Creig of the Department of Mathematics of the University of Colorado for advice concerning questions of averages, etc.

TABLE NO. 1 (weights in grams)

Species	Date	Body weight	Gonad Resting	weight Active	Gonad ratio to body	Fold increase	Remarks
Avocet	Oct. 20	493.60	±	.....	.....	.....	.....
Killdeer	May 5	90.00	.....	0.12	1/750	120	too early
Scaled Quail	Aug. 5	202.50	.....	0.20	1/1012	200	.....
Mourning Dove	Jan. 23	127.50	0.012	.....	.....	.....	.....
	May 5	120.20	.....	0.628	1/191	52	too early
Marsh Hawk	Sept. 11	342.00	0.017	.....	.....	.....	too early
American Rough-leg Hawk	Dec. 29	822.14	0.021	.....	.....	.....	in autumn
Ferruginous Rough-leg Hawk	Nov. 26	1445.82	±	.....	.....	.....	.....
Sparrow Hawk	Mch. 31	123.50	.....	0.47	1/263	470	.....
Screech Owl	Mch. 17	142.00	.....	0.71	1/200	710	.....
Hairy Woodpecker	Nov. 11	68.40	±	.....	.....	.....	.....
Lewis Woodpecker	Sept. 14	111.50	0.029	.....	.....	.....	delayed nesting?
Orange-shafted Flicker	Dec. 9	173.00	0.009	.....	.....	.....	.....
Wood Pewee	June 23	13.30	.....	0.10	1/133	100	.....
Trail Flycatcher	Sept. 3	13.60	±	.....	.....	.....	.....
Desert Horned Lark	Sept. 30	33.50	±	.....	.....	.....	.....
Magpie	Mch. 31	221.50	.....	0.95	.....	950	.....
	May 5	192.60	.....	0.87	1/221	870	.....
Long-crested Jay	Mch. 24	132.00	±	.....	.....	.....	.....
	May 30	108.00	.....	0.345	1/313	345	.....
Clark Crow	Oct. 14	136.00	0.70	.....	.....	.....	late breeding?
Red-winged Blackbird	Nov. 11	70.50	±	.....	.....	.....	.....
Meadowlark	Sept. 2	123.10	0.013	.....	.....	.....	late breeding
Mexican Crossbill	May 19	40.60	.....	0.02	1/2030	20	too early
Pale Goldfinch	May 30	13.90	.....	0.015	1/926	15	too early
English Sparrow	Oct. 11	27.90	±	.....	.....	.....	.....
	Dec. 12	28.00	±	.....	.....	.....	.....
	Feb. 10	28.70	0.014	.....	.....	.....	.....
	May 3	28.50	.....	0.45	.....	450	.....
	June 4	25.40	.....	0.445	1/57	445	.....
McCown Longspur	Sept. 30	27.40	±	.....	.....	.....	.....
Tree Sparrow	Nov. 11	19.30	±	.....	.....	.....	.....
Chipping Sparrow	May 19	13.80	.....	0.36	1/38	365	too early
Clay-colored Sparrow	May 8	13.20	.....	0.215	1/61	215	too early
Brewer Sparrow	Sept. 10	13.40	±	.....	.....	.....	.....
Slate-colored Junco	Nov. 11	19.50	±	.....	.....	.....	.....
Arctic Towhee	Dec. 2	39.00	±	.....	.....	.....	.....
Long-spurred Towhee	May 5	42.90	.....	0.587	1/73	587	.....
Black-headed Grosbeak	May 30	46.00	.....	0.97	1/47	970	.....
Lark Bunting	May 14	43.60	.....	0.66	1/66	660	.....
	May 20	43.70	.....	0.678	1/66	678	.....
Cassin Vireo	Sept. 10	16.70	±	.....	.....	.....	.....
Plumbeous Vireo	May 19	17.90	.....	0.07	1/256	70	too early
Virginia Warbler	May 19	7.80	.....	0.092	.....	92	too early
	July 8	9.50	.....	0.50	1/19	500	.....
	July 8	9.50	.....	.....	1/19	.....	.....
	Sept. 10	8.60	±	.....	.....	.....	.....
	Sept. 14	8.50	±	.....	.....	.....	.....
Yellow Warbler	May 30	8.40	.....	0.127	1/66	127	too early
Audubon Warbler	Sept. 16	12.20	±	.....	.....	.....	.....
Pileolated Warbler	Sept. 2	9.00	±	.....	.....	.....	.....
House Wren	May 19	11.40	.....	0.12	1/95	120	too early
Slender-billed Nuthatch	Mch. 10	18.50	±	.....	.....	.....	.....
Pigmy Nuthatch	May 19	10.50	.....	0.095	1/110	.....	too early
	Sept. 12	11.20	±	.....	.....	.....	.....
Long-tailed Chickadee	May 5	12.00	.....	0.16	1/75	160	.....
Catbird	May 30	37.00	.....	0.22	1/168	220	.....
Robin	May 19	80.00	.....	1.14	1/70	1140	.....
	Sept. 12	79.00	0.011	.....	.....	.....	.....

fold in weight in passing from the inactive to the active stage. A glance at the "fold" increase column discloses other situations equally surprising. The gonads of a Robin when active are eleven hundred and forty times heavier than when resting. The increase with a Pigmy Nuthatch is but ninety-five fold.

These investigations show that small birds have relatively or actually larger spermaries than larger birds; the active gonads of a Robin weigh more than those of a Magpie; while those of a Virginia Warbler exceed in weight those of a Long-crested Jay by almost forty-five per cent, and even actually exceed those of so large a bird as a Scaled Quail. This accords with the greater prolificity found in small birds, a condition probably demanded by their greater mortality. A study of gonad hypertrophy in birds is valuable not only *per se* but also, as just said, because this enlargement may have important bearings on activities in birds other than those of breeding. To get a correct idea of such collateral effects one must have some knowledge of what has been learned during the past few years concerning the physiology of the gonads and other glands which produce a so-called "internal secretion" or "hormone".

A brief review of such matters will therefore be apropos at this time. It is now well known that there are a number of secreting organs in vertebrates which have no ducts (or channels) through which their secretions can be delivered to a body cavity or externally. The thyroid, the pituitary and the adrenals are good examples, since they all are true ductless glands. Such glands are often termed the "endocrines".

On the other hand, there are secreting organs with true ducts through which the gland product is carried to the outside world, or to a body cavity, there to assist in other physiological processes; the pancreas, the ovaries and the spermaries illustrate this type of "internal secretion" gland. The purely ductless glands are vital to the growth, proper development and health maintenance of the containing body. This was known before it was definitely determined that the same thing is more or less true of those duct equipped glands, which were found also to throw into the circulation (not through the duct) a product of vast importance, in various ways, to the body. It was known that the sperm-forming glands, while not ductless, in some way produced maleness and all its manifestations in a bird, and that birds, if caponized early, failed to develop maleness in its fullest bloom. It was not understood, however, that this failure of development arose, not through the absence of spermatazoa, but to the body receiving none of the internal secretion which would have accrued to it had the gonads remained.

The internal secretion or hormone originating in the spermaries causes not only the growth of antlers in the elk, for example, but it also, at the period of greatest breeding activity, changes the whole action and demeanor of the animal. After one has watched any of the Cervidae during the mating season, even for a brief time, one realizes that a variety of veritable insanity possesses the creatures; the impulses engendered during this season are irresistible and indubitably proceed from the activities of the gonads and their correlated glands.

With most, if not all, mammals there is little if any increase in the size of the gonads at any time, but there may be a decided enlargement of some other organs, glands which are more or less closely related to the spermaries, the parotids in the Cervidae. All internal secretion glands act and interact in such a way as to stimulate, control, or repress each other. When one (or more) temporarily overacts, or becomes depressed in function, alterations in the animal's physiology occur. If these abnormal endocrine actions are of any long continued duration, functional or organic disease supervenes. One can gather from these facts that the endocrines are agents powerful enough to produce almost unbelievable activities and effects.

The vernal enlargement of the gonads in birds results in a progressive increase in their internal secretions, which starts the chain of events in motion leading finally to the rearing of the young. Without the gonadal hormone this series of events is wholly lacking, the spermary secretions being to the wonderful breeding displays and activities, as is the spark to gunpowder. Now *part* of the physiology of breeding in birds finds expression in the marvels of migration, which commonly is held to have two main groups of causes, the *extrinsic* and the *intrinsic*.

The first group does not concern us here, nor are we here discussing the *origin* of migration. The gonads belong in the second group and it seems impossible to escape the conclusion that they have a great deal to do with the activities of migration. It does not seem unreasonable to believe that migration may depend, more or less, on the spermaries when we recall that their secretions can bring into being striking differences in plumage and even in the structural characters of birds. If one could emasculate and then liberate migrating birds, their subsequent recapture might give direct evidence on the question of the relation of the gonads to migration. Unfortunately this is impracticable, and the problem must be approached in a more indirect manner.

However the migrating habit arose in birds, it can be said with safety that a present factor in its causation, a factor of enormous force, is the increase of certain hormones in birds' bodies caused by vernal spermary and ovarian hypertrophy. Gonad hypertrophy in male birds is not only the precursor of the formation of spermatozoa, but it also initiates, or accelerates, the pouring into the body of internal secretions which influence all of the bird's activities, engendering song, mating displays and belligerency, and the *activities of migration*. Physiologists are agreed as to the principle that the hormones act on various organs, and also on the body as a whole. It is the secretions from the endocrines which help guide the body during its development along the road to perfect maturity, and then in adult life act and interact on the various parts of the body to maintain not only the individual's health and existence but also the persistence of the species. That the periodic enlargement of the sperm glands in birds has a more or less direct causative relation to their migrations is not a new thought. It has been mentioned many times in the past, but, so far as I know, this relation has never been quantitatively demonstrated.

Chapman says that individuals found south of their breeding area, during the nesting season, are generally barren (Auk, XI, 1894, p. 14); and Alexander Wetmore, who has given a great deal of attention to avian anatomy and physiology, writes "that some of these [ducks] may remain in southern localities, lacking the physiological incentive for the flight to the breeding ground in the north" (Auk, XXXVII, 1920, p. 229).

There can be little question of the tenableness of the following points:

- A. That there is an enormous vernal hypertrophy of avian gonads.
- B. That this increase in size entails a greater and greater pouring of gonadal hormones into the body tissues.
- C. That these hormones cause many, if not all, of the breeding activities in the males, probably including the *activities of migration*.

There are several well known facts which support this last view. The spermaries enlarge earlier than do the ovaries, and coincidentally the males begin migrating earlier (with many species) than do the females. It is also well known that the vernal migration is immensely more urgent and impetuous than the autumnal. The first coincides with progressively increasing gonadal internal secretions, and the second with a waning condition in their hormone outpouring.

If migration in the male be more or less dependent on the intensity of spermary activity we ought to find this greater in the highly migratory than in the non-migratory species, which will be revealed by greater increase of gonad size. Manifestly the amount of material submitted in this study is too small upon which to base hard, fast and sweeping deductions relating to this point. Nevertheless a tabulation of the "fold" increase in size of the gonads of eleven non-migrating species compared with that of thirteen markedly (or highly) migratory birds shows a decidedly greater enlargement in the latter, enough to give color to the statement that migratory male birds have the greatest breeding gonad hypertrophy.

Table no. 2 gives the data on which this statement is based. With the eleven non-migrants there are but two species having five hundred fold (or more) increase, while with the thirteen migrants there are five having an increase of this amount or more. This situation would be altered in greater favor of the migrants had not six of these thirteen been collected a considerable time before the full physiological increase of the gonads could be attained. In other words, I believe most, if not all, of these thirteen migrants would have exhibited a gonad hypertrophy of five hundred fold or more had they been collected later on in the breeding season. If one compares the fully enlarged breeding gonads with the containing body, it is found that the proportion is much higher with the migratory than with the non-migratory birds. Thus, table no. 2 also shows that of ten non-migrants but two exhibited gonads which attained 1/75 (or more) of the body weight, while of the migrants eight reached or surpassed this level of increase, notwithstanding that five of these thirteen migrants were not at the highest breeding pitch. It would doubtless throw much light on this question were we in possession of data relating to gonad and body weights of such marvelous migrants as the Golden Plover and the Arctic Tern.

TABLE NO. 2

Non-migratory			Migratory		
Species	Fold increase	Gonad-body	Species	Fold increase	Gonad-body
Pale Goldfinch	15	1/926	Plumbeous Vireo	70	1/256
Mexican Crossbill	20	1/2030	Wood Pewee	100	1/133
Pigmy Nuthatch	95	1/110	House Wren	120	1/95
Killdeer*	120	1/750	Yellow Warbler	127	1/66
Long-tailed Chickadee	160	1/1012	Clay-colored Sparrow	215	1/61
Scaled Quail	200	1/75	Catbird	220	1/168
Long-crested Jay	345	1/313	Chipping Sparrow	360	1/38
English Sparrow	450	1/57	Virginia Warbler	500	1/19
Sparrow Hawk*	470	1/263	Long-spurred Towhee	587	1/73
Screech Owl	710	1/200	Mourning Dove	52	1/191
Magpie	950	1/221	Lark Bunting	678	1/66
			Black-headed Grosbeak	970	1/47
			Robin	1140	1/70

* Feebly migratory within Colorado.

I have elsewhere (Journal of Mammalogy) recorded a few data relating to the body weights and the spermary weights of some mammals. The highest ratio between these two different weights was found to obtain with guinea pigs, namely, a gonad weight of 1/6 of the body, and the lowest (1/1073) with the domestic cat. These data are, of course, too few to be anything but of comparative interest. With the five species of mammals recorded in this list the gonad weight to the body weight only once attained a ratio of 1/100 or better, while with the thirteen migratory birds, as aforesaid, it occurred nine times.

Can one doubt what the effect would be on the breeding activities of a mammal, a deer for example, if its physiology brought about an increase, in weight, in its gonads during the rut, of a five hundred or a thousand fold multiplication! It is

highly probable that there is an increase of the hormones coming from glands other than the gonads, in the Cervidae for example, during rut which may be the equivalent of the increase of internal secretions in vernal migrating birds; but so far as I know this has not yet been demonstrated.

SUMMARY

A. The gonads of most birds shrink to imponderable states during the non-breeding season; even when ponderable the spermaries in this season may weigh only $1/57430$ of the bird's body.

B. The gonads may grow in the nesting season to be $1/19$ of the body weight.

C. The males of smaller birds have relatively larger gonads than do males of larger birds.

D. A small male migratory bird may exhibit gonads actually heavier than those of a large non-migrating bird.

E. There is some evidence that the males of migratory birds have heavier gonads than do those of non-migrating birds.

Denver, Colorado, September 22, 1925.

A REPORT ON THE BIRDS OF NORTHWESTERN ALASKA AND
REGIONS ADJACENT TO BERING STRAIT. PART IX

WITH TWO ILLUSTRATIONS

By ALFRED M. BAILEY

ALASKA SPRUCE PARTRIDGE. *Canachites canadensis osgoodi*.

I secured a small series of these birds from natives at Kotzebue, March 27. The Eskimos reported them fairly common in the timber along the Kobuk and Noatak rivers, where they kill a number for the traders during the winter months.

WILLOW PTARMIGAN. *Lagopus lagopus albus*.

The Willow Ptarmigan is the common bird of the grouse family throughout northern Alaska and is to be found along the entire coast as well as in the interior when conditions are right. In southeastern Alaska, *albus* is replaced by the geographical form *alexandrae*, which is quite common on many of the islands and especially abundant in Glacier Bay. The Willow Ptarmigan is a larger bird than the Rock Ptarmigan, and while the latter is usually a resident of the hills, the former is found on the tundras and lowlands.

The ptarmigan are subject to years of scarcity, and not a single bird may be seen during a whole winter where they formerly occurred in great abundance. In 1919, ptarmigan were very scarce throughout the territory; in December, on a trip to within a short distance of the source of the Copper River, we saw but one bird. In 1920 the birds began to return, and in 1921 they were reported abundant at all points where they usually occur. I am unable to explain the cause of this scarcity at intervals, for, so far as I know, no disease has been reported among them. I have been told that great flocks often assemble in the White River Valley, moving from place to place for food.

They were plentiful around Nome during the summer of 1921, prospectors telling us that they were continually flushing the birds. We saw a number ourselves and found one nest. The old bird allowed me to photograph her at three feet and then, when I pushed her from the nest with a stick, remained alongside the eggs while I made another exposure.

At Saint Michael we found ptarmigan abundant July 20 to 24, coveys of half-grown birds being put up from alder thickets and berry patches where they were feeding upon lagoon berries. These youngsters were then about one-third grown. At Cape Blossom we again found many coveys of young birds, each covey with the pair of accompanying adults. In a few hours' time we must have flushed a dozen flocks, which flew from the alder thickets on the hillsides and scattered out over the tundra.

On August 3, four adults were seen at the Corwin Coal Mine; and we found them numerous in September about twenty miles inland from Wainwright. At this time (September 20) there was just a faint trace of snow upon the ground, and as the birds were then changing to their winter dress they seemed conspicuous when resting upon the brown patches of the tundra. They would usually alight in patches of "Alaska cotton", a grass with cotton-like tufts which effectually concealed them. Several large flocks were seen; usually these seemed to be made up of but one sex, as was indicated by the collected birds. We found them exceedingly wild at this time and none was seen near the coast.

During the first week in October, however, flocks of the birds seemed to be moving from one place to another. Many bands were seen feeding upon the leaves of the dwarfed willows near the beach. The Eskimos told us that they used to net the birds inland at this time, for they generally follow along the banks of the streams in great numbers. They could then be herded into nets of sinew, or taken in small whalebone snares. Ptarmigan continued numerous through the whole month of October, during which time they practically cleaned the willows along the coast of their leaves. Hendee saw great flocks fifty miles inland the latter part of October, and one bird near Barrow on January 2.

They seem to leave the coast during the winter months but they returned in April when a few were taken still wearing their winter white. Some killed on May 15 had scattered dark feathers in their necks, and a week later all birds taken had their heads and necks almost brown. No eggs were taken at Wainwright, as few birds seem to breed along the coast. The natives said the ptarmigan nest in great numbers along the rivers emptying into Wainwright Inlet.

On May 25 the first specimens secured at Wales were two fine males in their full breeding plumage, and on May 31 I saw a large flock composed almost entirely of these handsomely colored males. None were nesting close to Wales, but I found them very common along Mint River, which empties into Lopp Lagoon about twenty miles from Wales. A nest taken on July 6 contained eight eggs, with incubation about one-fourth. Some nests were found concealed under willows, while others were upon the open tundra. We placed our tent within twenty feet of a nesting bird and did not discover her until a day later, which shows not only the protective coloration of the bird, but how remarkably close they will sit when their nest is in danger.

ROCK PTARMIGAN. *Lagopus mutus rupestris*.

This grouse is generally distributed throughout Alaska, being found from the extreme northern part to the islands of southeastern Alaska. It is usually to be found on the high mountain tops where it feeds along the boulder strewn slopes or suns itself on conspicuous, and oftentimes overhanging, rocks. At such times, when a few scattered birds are to be seen plumped out in the sun's warm rays, they are very tame and allow one to approach within a few feet. They are not confined to the mountain tops exclusively, however, for in the summer, to the eastward of Point Barrow, I found flocks of young birds upon the tundra at the very edge of the Arctic Ocean. This was the only species which I took near Demarcation Point.

We saw a few in the hills back of Nome, and signs were especially numerous on Anvil Mountain. At this time, June 20, they were nesting and one set of ten eggs was collected, incubation being nearly complete. The nest was situated in a mossy embankment at an altitude of about six hundred feet, nearly concealed by the green growths, and was found by our first flushing the male and then searching the vicinity closely until we raised the female from under our feet.

We did not see Rock Ptarmigan again during the summer until we reached Demarcation Point where I collected six from a flock of a dozen on the tundra close to the beach. At this time the tundra was more like a swamp than anything else, water standing in pools everywhere. At Humphrey Point the next day, a few miles above Demarcation Point, several flocks were flushed and a young male collected. It was midnight when I was hunting at this latter point and, as the sky was overcast, the birds could not be seen distinctly, but the one collected was of this species so I have no doubt the others were. I secured a specimen in winter plumage taken by a native inland from Barrow on October 15. They were rare at Wainwright, as is to

be expected because of the lack of hills. Hendee secured seven specimens on May 28, five on the 30th, and three others the next day. These were the only examples taken at Wainwright.

The Rock Ptarmigan is the common form in the vicinity of Wales during the spring and summer, but the natives tell me it does not stay throughout the winter. Five specimens were seen on Wales Mountain on May 12 and a male collected had a few brown feathers in the back of his head. The males began calling by May 19 and the reindeer herders reported the birds common upon the mountain slopes. On June 5 they were abundant in pairs along the base of Wales Mountain where the males were going through their courtship antics. They would rise in the air with a rollicking, jarring cry and then drop back to prominent perches near the ladies of their choice. The real breeding plumage of the males is the winter white except for a few dark feathers about the head and neck. I took one specimen at this time which was entirely white except for the black loreal patch.

Here and there a nest was found along Cape Mountain at an altitude of a few hundred feet. The nests were similar to the one found at Nome, being placed in the grass with no effort at concealment. Mr. Dufresne found a nest on the tundra at Nome, this same season, in a clump of dried grass. The young birds scatter over the tundra in flocks, usually accompanied by one or both of the parent birds. At Teller, about seventy miles below Wales, Hendee found the Rock Ptarmigan exceedingly abundant through the latter part of August, and very tame.

MARSH HAWK. *Circus cyaneus hudsonius*.

Hendee observed a female over the bay at Saint Michael on September 2, 1922.

ROUGH-LEGGED HAWK. *Archibuteo lagopus sancti-johannis*.

This species was seen only at Golovin Bay during the summer, where several pairs were breeding along the rocky cliffs bordering the harbor. They were extremely noisy and called attention to their nesting sites by their continuous cries, circling round so that one could not fail to find the nest if given time.

We located one nest about thirty feet up on a crumbling cliff, a jumble of sticks cemented together by excrement and placed upon an overhanging rock, inaccessible from above or below, the young being collected by means of a lasso on a stick. Several mice littered up the nest. This pair of birds was exceedingly tame. Both color phases were represented, the female light-colored, the male in dark plumage. Another pair was nesting down the beach a mile, some of the sailors from the "Bear" locating the nest and reporting three young, as in the nest which we found.

To me the Rough-leg is one of the finest of our birds of prey, a non-destroyer of bird life, remarkably tame for that family, in fact too easily approached for his own good. Hovering high over the mountains bordering placid harbors, dark against the cloud-filled sky, its eerie calls carry for a great distance, lending enchantment to the most isolated regions.

GOLDEN EAGLE. *Aquila chrysaetos canadensis*.

None of these birds was seen during the summer cruise, but the species is included in the list for the reason that Gordon had a skin collected near Demarcation Point during the spring. An eagle of some species was seen in Providence Bay, Siberia. A set of two eggs was taken by Mr. Dupertius of the Bureau of Education, a few miles from Solomon, just below Nome. They were collected in June, 1922, and donated to us.

NORTHERN BALD EAGLE. *Haliaeetus leucocephalus alascanus*.

Hendee observed the Bald Eagle practically every day of his stay at Unalaska in September. He records it as common.

DUCK HAWK. *Falco peregrinus anatum*.

Hawks were very scarce in the Arctic during the summer of 1921, and only one specimen was collected. This, a Duck Hawk, was taken by a native near Icy Cape on September 6, and we saw another the same day. At Wainwright a hawk was seen on September 15 and one on September 19; what species I do not know. When off Point Martin, near Demarcation Point, August 13, a Duck Hawk, pursued by an Arctic Tern which kept darting at it from all angles, hovered over the ship for about ten minutes, starting several times to alight in the rigging.



Fig. 35. NEST AND YOUNG OF AMERICAN ROUGH-LEGGED HAWK; GOLOVIN BAY, ALASKA, JULY, 1921.

PEALE FALCON. *Falco peregrinus pealei*.

Hendee reported these birds fairly numerous at Unalaska the latter part of September. They were often seen attempting to catch White-winged Scoters.

PIGEON HAWK. *Falco columbarius columbarius*.

One specimen was seen August 15 near Demarcation Point. Hendee collected one at Unalaska September 25, 1922, and saw another the next day.

SHORT-EARED OWL. *Asio flammeus flammeus*.

This wide-ranging species was noted hovering over the tundra near Nome on June 21. Two birds worked back and forth, sailing low over the ground as they watched for their prey. Their summer range extends far into the Arctic; the Eskimos collected several at the head of Wainwright Inlet, one of which we saved for a specimen. They told us that these birds were not uncommon, being seen during the summer months along the different inland rivers back of Wainwright and Barrow.

Three specimens were taken at Wainwright the following season, one each on June 10, 24, and 27. At Wales three specimens were seen on May 31, and Hendee collected one at Unalaska September 26.

SAINT MICHAEL HORNED OWL. *Bubo virginianus algistus*.

One specimen of Horned Owl which had been caught in a trap in October, 1920, was secured from a native at Point Hope. Joe Tuckfield, an old whaler, told me these owls come about "once in seven years", so they cannot be considered numerous. They are known as lynx owls. I believe this to be a northern record for the species. Hersey (Auk, xxxiv, April, 1917, p. 157) has pointed out the inconsistency of recognizing this as a geographical race, as its range is treeless. Specimens collected on the tundra are merely stragglers from the wooded river districts.

SNOWY OWL. *Nyctea nyctea*.

This beautiful species is a common bird throughout Arctic Alaska. It is subject to years of plenty when birds will be seen very commonly, while other years but few are noted in a given locality. During 1921 we saw a number of these birds in the



Fig. 33. NEST AND YOUNG OF SNOWY OWL; NOME, ALASKA, JUNE, 1921.

vicinity of Nome, where they were nesting; one nest on the tundra contained four young and three addled eggs. This nest had been located or "staked" according to the laws of the North by Mr. Dufresne, advising the public that the nest was his claim, as he desired to study the food of the young. He kindly gave us the birds as specimens. In a day's hike back from Nome we saw five pairs of Snowy Owls but were unable to locate their nests. Dufresne had already destroyed the young of two pairs, one nest of which contained nine eggs and young, the other eight. He told us the eggs seemed to hatch out every other day. Prospectors destroy the nests of the Snowy Owl and kill the old birds at every opportunity, because of the damage they do to ptarmigan.

The nest we visited was on a knoll on the tundra, half a mile away from the nearest foothill. It was a mere depression lined scantily with willow leaves. The young were typical of young owls, ungainly little creatures with eyes tightly closed. They proved most unsatisfactory subjects to photograph, looking no more interesting

than fluffs of wool; all seemed bound to hide their faces. The old male, a fine white specimen, kept circling overhead, occasionally making a hoarse "who-who". He would sail up against the wind, then circling, would dart within a few feet of us, paying special attention to my Airedale. He once struck the dog with his talons, causing the bewildered Jerry to drop to the ground with a bleeding ear. The speed with which the owl could drop from the sky on folded wings was a revelation, and time and again I found myself dodging from his fierce onslaught.

We collected these young birds June 24, when the youngsters showed considerable increase in size. The weather had turned very warm, so that clouds of mosquitos rose from the grass on all sides. The heat of the day caused the birds to pant, and the bright glare kept them from opening their eyes except for mere slits which showed the small pupil and yellow-brown iris.

Several Snowy Owls were seen to the eastward of Barrow, especially at Cape Simpson August 20, and a few were noted the last of October and the first of November along the coast between Wainwright and Barrow. All these showed considerable dark color in their plumage. Hendee, on a twenty-five day trip inland where ptarmigan were very numerous, saw but three birds. The species continued rare throughout the winter, but in the spring they approached the coast, and after May 1 they were seen regularly on the sea ice and over the lead. After June 17, until Hendee left in August, six or seven owls could be seen daily near the village. They were rare about Wales during the spring of 1922. I saw a few occasionally, but they were shy and would not allow a close approach. On May 28 I saw one with a ground squirrel. The natives claimed not to have seen any nests of this species there, yet in the mountains and on the tundra back of Nome they were not scarce. Mr. Dufresne told me that few owls nested back of Nome in 1922, compared with the number he found the preceding year.

In 1924 Mr. Brower collected several sets of Snowy Owls' eggs on the tundra some distance inland from the village of Barrow. Mr. Brower commented on the abundance of the owls one year and their scarcity the next. He added that he considered the unusual number of lemmings present as one cause for so many owls in the vicinity of Barrow during the spring of 1924. The sets varied from three to eight eggs, and all the eggs were remarkably uniform in size. Mr. Brower saw two Pomarine Jaegers kill a Snowy Owl this season near her nest. The jaegers swooped upon the flying bird forcing her to the ground and then, with repeated onslaughts from the wing, finally killed the owl.

BOREAL FLICKER. *Colaptes auratus borealis*.

Through the courtesy of Dr. Joseph Grinnell I am able to include the Boreal Flicker in our list of Arctic coast birds. The specimen (an adult female, Museum of Vertebrate Zoology no. 45092) was sent to Dr. Harold Heath of Stanford University by Mr. C. L. Andrews who represented the Bureau of Education at Wainwright in 1924. In answer to a letter of mine Dr. Heath stated that Mr. Andrews was "absolutely reliable" and he quoted from Mr. Andrews' letter as follows: "I am sending you a skin of a flicker a boy shot and brought in a few days ago. It seems strange to find a bird of this kind so far from the forests which must be at least five hundred miles distant."

It is not so far to timber as Mr. Andrews estimated. Forests occur along the Noatak and Kobuk rivers some three hundred miles or less to the southward of Wainwright, and large willows grow northward along sheltered river valleys; but none over a few feet in height occur within fifty miles of Wainwright. To find a flicker so far from its natural habitat seems strange indeed.

Denver, Colorado, September 8, 1925.

FROM FIELD AND STUDY

Townsend Solitaire Singing in the Autumn.—On the morning of October 14, 1925, I happened to be walking up the old road in the bottom of Granger Canyon, on the east side of the Warner Mountains, near Cedarville, Modoc County, California, when my attention was attracted by the clear notes of a bird song, a song that was familiar, and yet one that seemed to be too loud for that of the species suspected of giving it voice.

The morning was clear and beautiful. Not a breath of air was stirring, and what few sounds there were in this near-desert canyon carried remarkably far. Yet the singer seemed near, and some time was spent in trying to locate it. The road there led up the bottom of the canyon, which runs nearly east and west, and the singer was on the warmer hillside of the southern exposure. Not being able to catch a glimpse of the bird from my position, I sent my assistant up the hillside toward the source of the sound, and, after he had gone some distance, the bird flushed from a small juniper among the rocks and much farther away than seemed possible from the volume of sound that had reached us. My provisional identification was correct, for the bird proved to be a Townsend Solitaire (*Myadestes townsendi*).

The altitude of that spot was possibly 5,500 feet above sea level. As we continued up the steep road grade, some ten to twelve more of these birds were seen in the hour that it took us in a leisurely fashion to attain another thousand feet of elevation, and in that time four or five other Solitaires were heard and located in full song. A few of them must have been nearly half a mile away and all were above us, some at an altitude where patches of snow still remained from a fall of several days before.

While I have come across this species many times and in many places in the fall of the year, it had never before been my good fortune to hear it in song except in the spring and early summer, and considerable search on my part has failed to reveal many records of fall or winter song. Most of such records as I have so far come across distinctly state, or else give the impression, that the song during autumn and winter is soft and subdued.

Charles F. Batchelder (Auk, vol. 2, 1885, p. 128) states that he noted this species in New Mexico in December, 1882, and says that its song is "not loud and striking, but is clear, sweetly modulated, and full of expression, and is long sustained. . . . It sounds as if it came from a distance even when the singer is quite near." Again, to quote from "A List of Birds from the Vicinity of Golden, Colorado", by R. B. Rockwell and Alexander Wetmore (Auk, vol. 31, 1914, p. 332), on November 7, Solitaires "were found in sunny hollows on the side slopes and were singing a low, warbling song." At Collegeville, Minnesota, December 20, 1909, "its melodious warble broke the monotony of a winter day" (Severin Gertken, Auk, vol. 33, 1916, p. 327). There is nothing here to indicate an impression of vigor or volume.

On the other hand, Grinnell and Storer ("Animal Life in the Yosemite", 1924, p. 596) say: "The song season is not, as with many birds, restricted to the spring and early summer; but the autumn and early winter witnesses occasional outbursts of song, fully as melodious as those of summer and more impressive in the prevailing chill and silence." And again, on page 599, writing of early October: "Just as the sun came up over the rocky ridges to the east and touched the tips of the junipers, the solitaires would break forth into song nearly or quite as ecstatic as that of early summer, excelling in both quality and volume all other voices in the Glen. . . . No other bird of the Yosemite, except perhaps the American Dipper, seems to have quite such a revival of song in the fall as does the solitaire."

My own experience herein described merely corroborates that of Messrs. Grinnell and Storer in this matter of the vigor with which the Solitaire voices its feelings on fine, crisp days in autumn. It seems strange, however, that there has been so little reference made, in the published experiences of other observers, to this pleasant trait. Possibly the Solitaire feels the more cheerful the farther west it lives.—JOSEPH MAILLIARD, California Academy of Sciences, San Francisco, California, February 1, 1926.

English Aviaries.—Having read Dr. Casey Wood's article on English aviaries (Condor, vol. 38, 1926, pp. 3-30) with great interest, I feel impelled to add a few remarks. While on a visit to England during the winter of 1920-21 I had the privilege of meeting the late Mrs. Dalton-Burgess, who was kind enough to show me her aviaries

at Helston House, Clifton, a most delightful experience. The greater number of her birds were strange to me, being mostly tropical or Australian, if I remember rightly, and there were hardly any from North America. Of them all, perhaps, what struck me most was a pair of Horned Larks, seemingly quite happy, running about the floor of one of the cages. After associating the Horned Lark with the open prairie it seemed extraordinary that these birds could be content within such a circumscribed area. I remember Mrs. Burgess telling me that she had given up trying to keep indigenous birds. It seemed to her that the latter were ever mindful of their lost liberty, and did not thrive in consequence.

It was of particular interest to me to hear of Mr. Whitley, whom I have not met since I was at school with him in the nineties.—L. B. POTTER, *Eastend, Saskatchewan, Canada, March 10, 1926.*

Ruby-throated Hummingbird near St. Michael, Alaska.*—The United States National Museum has recently received a mummied specimen of the Ruby-throated Hummingbird (*Archilochus colubris*) from Mr. Oscar C. Hall, of St. Michael, who states that it was picked up by a native on the beach among the rocks at a place called Klukatauck, about eighteen miles from St. Michael. Mr. Hall's letter was dated December 31, 1925, but failed to indicate just when the bird was discovered. There seems to be no record for this species for British Columbia, and perhaps the most northern previous record is the very uncertain one quoted by Preble (North American Fauna, no. 27, 1908, p. 390) for Lake Athabaska, Alberta, or vicinity. The specimen from Alaska has been recorded in the National Museum as no. 306,051.—BRADSHAW H. SWALES, *U. S. National Museum, Washington, D. C., March 2, 1926.*

Casualties among Birds.—As a continuation of my observations in 1924, on the casualties in the nest due to natural causes (Condor, vol. 27, 1925; p. 114) the following interesting results were obtained during the nesting season of 1925.

The observations covered 39 nests of 17 species of birds. Of a total of 168 eggs laid, only 104, or 62 per cent of the eggs hatched; and of these only 68 birds, or 65 per cent of the young, lived long enough to leave the nest. The percentage of eggs which produced adults was 40.5, giving a total casualty record of 59.5 per cent.

This final percentage is very interesting when compared with that of 1924, which gave a total casualty of 59.4 per cent, or almost an identical figure for the two years. This was surprising to me, as I expected to find a much higher percentage in 1925, due to the heavy rains during the early part of the nesting season, which destroyed many nests. This, however, seems to have been equalized by other outside agencies during the season of 1924.—ERNEST D. CLABAUGH, *Berkeley, California, February 17, 1926.*

Another New Race of Quail from Lower California.—Mr. James Lee Peters has recently well characterized (Proc. New England Zool. Club, VIII, May 16, 1923, pp. 79-80) the subspecies of California Quail inhabiting the Cape region of Lower California; and he names it *Lophortyx californica achrustera*. He, as well as each other recent author, considers the quail of the northern part of Lower California to belong to the race *L. c. vallicola* (Ridgway). The present accumulation of material in the Museum of Vertebrate Zoology brings out the fact, however, that the California Quail of the northern section of the Lower Californian peninsula have distinguishing characters warranting the application of a separate name to them. This I now do.

Lophortyx californica plumbea, new subspecies. San Quintin California Quail.

Type locality.—San José, 2500 feet altitude, latitude close to 31°, about 45 miles northeast of San Quintin, Lower California, Mexico.

Type.—Male, in full fresh annual plumage; no. 46206, Mus. Vert. Zool.; September 27, 1925; collected by J. Grinnell, orig. no. 6344.

Diagnosis.—In general characters similar to *Lophortyx californica vallicola* and *L. c. achrustera*, but tone of coloration clearer, less buffy or brownish; gray or lead-color on dorsum, foreparts and sides, and remiges, more slaty than in either.

Measurements.—While the new form obviously averages smaller than near-topotypes of *vallicola* (from the upper Sacramento Valley), there is so much variation in size elsewhere, throughout the general range of *vallicola*, as to make such difference

* Published with the permission of the Secretary of the Smithsonian Institution.

invalid. This statement is based on a considerable series of dimensions taken; for I had fully expected size differences to become apparent.

Range.—So far as known, an area in northwestern Lower California, chiefly on the Pacific slope, extending north at least from the vicinity of San Quintin to Cape Colnett and from sea-level to as high as 8500 feet altitude on the Sierra San Pedro Martir, and also down to the east base of that range. Life-zone essentially Upper Sonoran, but locally Transition and Lower Sonoran, too. Specimens examined, 27, from the following localities: Colnett; San Ramon; Santo Domingo; Arroyo Nuevo York; San Telmo; San José; Valladares; La Grulla, 7200 ft.; Vallecitos, 8500 ft.; Cajon Cañon, east base Sierra San Pedro Martir.

Remarks.—It should go without saying that in quail fresh fall plumages should be relied upon chiefly, if not altogether, in seeking color values. When this is done, the quail of the "San Quintin district" show themselves to differ in mass effect appreciably from Valley Quail from anywhere north of the Mexican line. San Diego County birds, even, and those from Riverside and Inyo counties, well east of the desert divides, all are markedly browner dorsally, the remiges browner, the chest less clearly ashy gray, and the "ground" tone of the hinder flanks and crissum more brightly tan. This holds for both sexes. The creamy area on the lower chest of male *plumbea*, while not so pale as in *achrusteria*, is not so deep-toned as in average *vallicola*. In females the grayness about the head and on the chest in *plumbea* is almost constantly diagnostic; and in both sexes, the plumbeous tone of the remiges is as a rule strikingly different from the brown tone in *vallicola*. In the dried specimens, the feet and legs of *plumbea* average blacker than in *vallicola*.

To sum up, the new race, *plumbea*, is based on features of pigmentation; it is characterized by a reduction in brown in some tracts and a development of black in the same tracts or in others; individual variation bridges the gap between it and its nearest relatives, *vallicola* and *achrusteria*. Geographically, the belt of intergradation with *vallicola* lies somewhere between the United States-Mexico line and latitude 31°.—J. GRINNELL, Museum of Vertebrate Zoology, University of California, Berkeley, February 8, 1926.

The Present Status of the Trumpeter Swan.—Mr. Edson's note in the January number of the CONDOR on the Trumpeter Swan (*Cygnus buccinator*) calls for some comment. This swan, the largest of all North American birds, has been especially unfortunate in the manner it has been dealt with by most of its historians. The accounts of its former abundance (as by Audubon) are almost certainly greatly exaggerated, and the many recent statements as to its extermination are in absolute error. It is not to be "counted with the extinct birds" even in Mr. Edson's own state.

No recognition has been given by some of its recent historians, such as Mr. H. K. Coale, to records in recent Canadian literature. Macoun, Fleming, Taverner, Munro, Mitchell, and the present writer have all apparently written of it to no purpose, and while it is undesirable to detail the many localities where it exists, enough has been written to show that it still occurs in some numbers from Saskatchewan to the Pacific.

In British Columbia we have at least five wintering colonies, and I can vouch for the fact that a certain number (in 1924 it was eighteen) cross the boundary at Okanagan into Washington each year, to winter at some point in eastern Washington, Oregon or southern Idaho. A newspaper clipping indicates that one or more was killed in the latter state last fall. It behooves the bird lovers of these states, instead of bewailing the extinction of this swan, to do some work in winter, locate the wintering ground of this flock (or flocks), and provide suitable protection, as has been done by the Dominion Parks Branch in British Columbia. It is a rather remarkable paradox that accurate information nowadays is in inverse ratio to the size of the bird, especially in the West.—ALLAN BROOKS, Nanaimo, British Columbia, February 2, 1926.

Injured Juncos Quickly Recover.—Probably no bird that enters the traps gives a stronger impression of porcelain delicacy and gentle helplessness than does the junco. One easily imagines that it would succumb quickly, quicker perhaps than almost any other bird, to any violence. That the Thurber Junco (*Junco oreganus thurberi*), however, does not readily succumb even to violent blows is indicated by two incidents which happened during the past summer at Bluff Lake, in the San Bernardino Mountains, California.

When not trapping, we scattered bread crumbs about the cabin door for birds, and very soon a little flock of juncos learned to make this a regular feeding ground. Occasionally one made so bold as to enter the kitchen, the door of which was usually open. On either side of the door, and also across the room from it twelve and a half feet away, were windows whose sills were about three feet above the floor. These windows were regularly kept closed.

An immature male junco (no. 59948), which had been banded 450 yards away on September 11, 1925, came into the kitchen on September 16 without being noticed. A quick move on my part sent the junco dashing from the middle of the floor to a window on the left of the door, where it banged the pane at full speed; then it dashed across the room with greater momentum striking against the pane of the window opposite the door and falling to the sill; then across again, bumping the window at the right of the door at full speed. Here it dropped to the floor unconscious.

When picked up, it lay on my hand as if dead. It was then laid right side up on a chair which was placed in the doorway. There it tumbled forward onto its breast with beak against the chair seat, eyes closed. Gradually labored breathing began. In about five minutes, during which we quietly watched it, it raised its head to normal position though still squatting against the chair, and a little later it flew away. Within an hour, a junco which looked like the same bird, but which was distinguished from the rest of the flock because it kept its head down close to body and feathers fluffed out as if stiff-necked, was hopping about in front of the cabin looking for food.

Again, on September 25, junco no. 91403, banded on September 12 as an immature at the same place where no. 59948 had been banded, and retaken there on the 13th and 15th, underwent the same disaster, dropping as if dead at 12:18 M. Just as with 59948, this bird rested forward on breast and beak, eyes shut, when laid on a chair. At 12:26 it had revived and had raised its head, though still squatting, and had its eyes open and it was alert to movements and noises. At 12:33 it flew off into the willows, a 75 yard flight, during which it gave a normal chirp. At 10:03 A. M. on September 26, it was again in the trap, apparently as well as ever.

It seems notable that on the only two occasions when we inadvertently frightened juncos that had entered the kitchen, they chose the window beside the door and not the door, through which passage was unobstructed, and through which many birds undisturbed entered and departed. Compare this apparent stupidity with the sophisticated composure of the young Green-tailed Towhee, recorded in a concurrent note herewith.—J. EUGENE LAW, *Altadena, California, March 25, 1926.*

Anna Hummingbird Bathing.—One warm summer day in 1924, a half mile north of Yountville, on the Calistoga highway, I was standing by an old windmill, when suddenly I noticed an Anna Hummingbird (*Calypte anna*) fly down onto the pump below. As the pump was old and needed repairs it was a small fountain whenever the windmill was running; and the top of the pump, forming a small basin, was covered nearly a quarter of an inch deep with water. The hummingbird entered this basin and began bathing, splashing the water in much the same manner as would a tame canary. Afterward it flew to a willow close by, and, perching on a twig, shook its feathers and began preening and drying itself in the warm sunshine. After a few minutes it flew away.—JAMES L. ORTEGA, *Yountville, California, January 27, 1926.*

Contents of Barn Owl Pellets.—The following material contained in 68 pellets, was picked up under the nest of a Barn Owl (*Tyto alba pratincola*) in Wildcat Canyon, near Berkeley, California. The 68 pellets held the remains of 123 meadow mice, 37 white-footed mice, 24 harvest mice, 7 pocket gophers, 6 shrews, 1 mole, 1 pocket mouse and 13 Jerusalem crickets, a total of 212 items. The pellets examined were of recent origin, less than a year old. Old decomposed pellets on the ground beneath the nest showed remains of many gophers and wood rats as well as remains of smaller rodents. The wings of a Red-shafted Flicker were found beneath the nest, but no remains of birds were found in any of the pellets. Identification of mammal remains has been checked by Joseph Dixon of the Museum of Vertebrate Zoology.—G. L. FOSTER, *Berkeley, California, October 20, 1925.*

An Additional Subspecies of Spotted Towhee from Lower California.—In an attempt to identify a series of spotted towhees from north-central Lower California, it became apparent to the writers that an additional subspecies would have to be named. This we now do, as follows:

Pipilo maculatus umbraticola, new subspecies. Cape Colnett Spotted Towhee.

Type.—Female adult; no. 46390, Mus. Vert. Zool.; Colnett, lat. 31°, Lower California, Mexico; October 28, 1925; collected by J. Grinnell; original no. 6638.

Distinguishing characters.—Differs from *Pipilo maculatus megalonyx*, to which it is nearest both geographically and in appearance, in smaller bill and darker coloration. Color differences are most apparent in females, these being decidedly slaty dorsally in *umbraticola*, as compared with the browner tinge seen in female *megalonyx*.

Range.—So far as at present known, an area in northwestern Lower California, on the Pacific slope west from the San Pedro Martir plateau (up to 7500 feet altitude) down to the sea-coast. Life-zone characteristically Upper Sonoran, but occurs locally within territories where the Transition or the Lower Sonoran predominates; in the latter case, restricted to steep, north-facing, and hence heavily shaded, ravine-sides. Specimens examined, 29, from the following localities: La Grulla, 7000-7500 feet; Concepcion, 6000 feet; Valladares, 2700 feet; San José, 2500 feet; San Telmo, 600 feet; Santo Domingo; San Ramon; Colnett. All collected by either Chester C. Lamb or J. Grinnell.

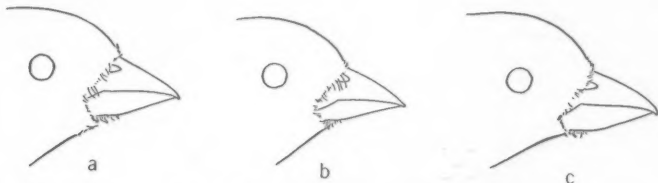


Fig. 37. BILLS OF THREE SUBSPECIES OF SPOTTED TOWHEE (*Pipilo maculatus*); NATURAL SIZE.

a. *P. m. megalonyx*, ♀ ad.; no. 36376, Mus. Vert. Zool.; Pasadena, California, September 21, 1904.

b. *P. m. umbraticola*, ♀ ad.; no. 46383, Mus. Vert. Zool.; La Grulla, San Pedro Martir Mountains, Lower California, Mexico; October 10, 1925.

c. *P. m. magnirostris*, ♂; no. 36676, coll. L. B. Bishop; El Valle, Lower California, Mexico; January 28, 1924.

Measurements.—Ten males measure in millimeters (average, minimum and maximum) as follows: wing, 85.2 (82.0-90.0); tail, 98.4 (94.0-100.5); culmen, 13.0 (11.5-13.5); tarsus, 28.1 (27.5-29.0); hind toe and claw, 20.9 (20.5-22.0); length of white spot on inner web of outer tail feather, 24.4 (19.5-29.0). (For measurements of related Pacific coast subspecies of *Pipilo maculatus*, see Swarth, Condor, xv, September, 1913, p. 175.)

Remarks.—The spotted towhees of western North America attain the extremest pallor of coloration in the Rocky Mountain and Great Basin regions, as shown in the subspecies *arcticus*, *montanus*, and *curtatus*. Westward, relatively pallid coloration persists as far as the central valleys of California, the habitat of *falcinellus*. On the extreme Pacific coast a somewhat different sort of variation occurs. The darkest race (*oregonus*), darkest in the sense that here the white markings are most restricted, occurs at the north. In this race, too, darkness is exemplified in the deeper shade of chestnut on the sides, flanks and lower tail coverts, and, in the female, in a dark brownish suffusion throughout all the blackish areas. Southward, through the range of *falcifer*, the brownish tinge is lessened and the white areas increased in size, changes which are carried still farther in *megalonyx*.

In *umbraticola* these modifications reach their extreme, the diminishing of the brown tones resulting in a blacker, slatier colored bird, particularly in the female, than *megalonyx* and *falcifer*. While *umbraticola* is thus blacker colored, there is little or no diminishing of the white areas, as compared with those races, nor is there any appreciable paling of the chestnut colored sides and lower tail coverts. The increase of black pigmentation, besides resulting in a generally more slaty tone of all the blackish body areas, shows very plainly in the wing and tail feathers, and even in the "soft parts". The bill and feet of *umbraticola* are on the average decidedly blacker than in any other of the western subspecies of *Pipilo maculatus*.

The large-billed, pale colored *magnirostris*, of the Cape region of Lower California, represents a far departure from the mode of *umbraticola*, and one which at present is not known to us to be bridged by any connecting links.

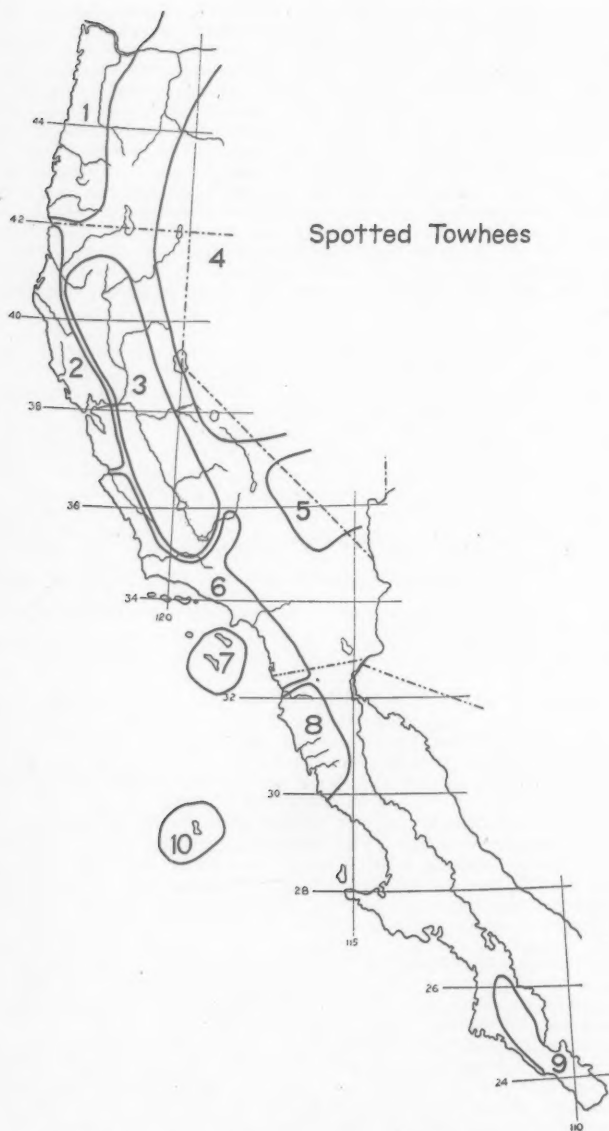


Fig. 38. MAP SHOWING DISTRIBUTION OF THE SPOTTED TOWHEES ALONG THE PACIFIC COAST. FOR NAMES OF THE SUBSPECIES, SEE TEXT.

The Pacific Coast races of *Pipilo maculatus* as now recognized by the writers stand as follows, listing them as near as it is practicable to do so from north to south. The accompanying map shows in part the approximate territory inhabited by each in the breeding season, as inferred from a study of the materials in the Museum of Vertebrate Zoology.

1. *Pipilo maculatus oregonus* Bell. Oregon Spotted Towhee.
2. *Pipilo maculatus falcifer* McGregor. San Francisco Spotted Towhee.
3. *Pipilo maculatus falcinellus* Swarth. Sacramento Spotted Towhee.
4. *Pipilo maculatus curtatus* Grinnell. Nevada Spotted Towhee.
5. *Pipilo maculatus montanus* Swarth. Rocky Mountain Spotted Towhee.
6. *Pipilo maculatus megalonyx* Baird. San Diego Spotted Towhee.
7. *Pipilo maculatus clementae* Grinnell. San Clemente Spotted Towhee.
8. *Pipilo maculatus umbraticola* Grinnell and Swarth. Cape Colnett Spotted Towhee.
9. *Pipilo maculatus magnirostris* Brewster. Large-billed Spotted Towhee.
10. *Pipilo consobrinus* Ridgway. Guadalupe Spotted Towhee.

—J. GRINNELL and H. S. SWARTH, *Museum of Vertebrate Zoology, University of California, February 22, 1926.*

Another Straggler Reaches the Pribilofs.—On St. George Island, Alaska, June 20, 1923, a small bird was found in a rain barrel by a resident of that island. It had been so long in the water that it would not make a good laboratory skin, but it was preserved in-the-flesh in alcohol. This specimen was recently sent for identification to the California Academy of Sciences and proved to be a Bank Swallow (*Riparia riparia*), new to the recorded list of birds of the Pribilof Islands.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, California, February 3, 1926.*

Green-tailed Towhee Qualifies in Intelligence Test.—In early August, 1925, Mrs. Law and I were occupying the Walker cabin at Bluff Lake, in the San Bernardino Mountains, California. Crumbs and nut meats, which we scattered about, soon began to assemble Green-tailed Towhees (*Oberholseria chlorura*).

The first to appear was a youngster, in juvenal garb but grown, and with it an older bird of the year, already in post-juvenal plumage. As the days passed three adults came along, one of them wearing an old band. All five became competitors for the food which we kept constantly ready for them, the adults dominating the immatures mercilessly.

All soon learned that a swinging arm meant a tossed crumb, and one or more birds invariably dashed for a thrown crumb, but never apparently tried to catch the morsel on the wing. Their sight is particularly keen and far, and even a crumb held up for inspection was at once detected by the birds from their brush cover some twenty-five feet away, and they were alert to start for the morsel the instant it was thrown. They often snatched the thrown tidbits from among chipmunks (*Eutamias speciosus*) which appeared stupidly unconscious that food had been thrown. The chipmunks soon learned, however, that we were favoring the birds and became openly jealous and chased the birds around. The latter yielded ground but that was all, and we often saw one hopping around comically just in advance of a pursuing chipmunk. Once I saw a towhee stand its ground, with lowered head, and then the chipmunk yielded.

If a crumb or kernel was too large to be swallowed entire, it was usually borne in beak to the brush cover, from whence most of the spurts began. When "chewing" such a crumb of bread, it is held at the side near the base of the beak, and the edges of the upper tomia cut off morsels into the mouth as the mandibles move rapidly. Never did we see any effort to hold a morsel with the foot.

Quite to our surprise, when we had nuts suspended on strings to test the jumping limit of the chipmunks, adult towhees, never more than one in action at a time, possibly only the same individual at all times, often jumped up and caught at the nut kernel thirteen inches from the ground, and occasionally one hung there by its beak flopping the body about, ludicrously like a fish just pulled from the water. In no case did we detect the bird actually dislodging the nut. As soon as the adults had tasted English Walnut meat, they lost their interest in bread crumbs and seemed to instantly distinguish between the two.

The adult towhees never came to our hands for food but became quite indifferent to our presence and worked freely about the ground in front of our open kitchen; indeed, often about the kitchen floor if we remained quiet. The juvenal, in striking contrast, quickly became friendly and unsuspicious, but rejected nut meat unless finely broken up, and clearly preferred the bread crumbs. These it would come and take from our hands when the crumb was patiently held down to the level of its head, though it never came with reckless abandon. Once on the way to my hand, it paused to snatch a live fly from the floor, and then came on for its crumb. It soon learned, too, to come to the table, at my elbow, and help itself to the litter of crumbs always kept there. The older bird of the year, while slightly less confiding, was much less suspicious than were the adults, whose survival to maturity was no doubt the direct result of serious suspicion of all objects that moved.

Just before moving camp I set the trap and almost as soon as I turned my back, the two youngsters and an adult were in. The younger juvenal became no. 76549, and an hour later was eating out of my hand again.

On September 3 we moved to an Edwards' cabin, some 400 yards distant and hidden by a knoll from the Walker cabin which we had been occupying. At first we had no Green-tailed Towhee boarders there, but after a few days a banded one appeared and ran toward us in apparent anticipation. Bread crumbs quickly thrown out were pounced upon, and we felt sure "our juvenal" had found us, although this bird had now acquired its full post-juvenal plumage. From then on it was usually nearby, spending much of its time under the cabin and porch, much as the birds of this species had at the Walker cabin kept under or near the brush cover.

An old candy box was now kept liberally filled with crumbs and cracked wheat, usually on a chair just inside the kitchen door, but later, on the table, and our bird was soon almost as much in the kitchen as out. It would come and go all day, eating its fill every hour or so, and often went about the kitchen on a rather complete tour of inspection which included the water pail, stove, chair backs and a dish of fresh fruit on the table. Grapes it picked holes in, eating the pulp, but was satisfied with a grape or two at a time, apparently, and only ate a small part of each. Watermelon it ate greedily on first sight. We were amused at its attitude toward blow flies, which we killed and put in its food box. On one occasion it ate two, but laid down a third when a squeeze popped it, then ate some bread, then picked up a fourth and popped it and laid it down, after which it busied itself with the crumbs.

One morning, just at dawn, the "pat-pat-pat" of tiny claws on the bedroom floor announced no. 76549 looking for his breakfast. The door had been open. Seeing us the bird flew up and all but alighted on my head. The next morning the food box was ready and when held out to sight, the bird immediately came up on the bed via a nearby chair, hovered a moment at the box, then returned to the floor. A moment later, though, it came back to the box and ate its fill within fifteen inches of my eyes. On subsequent mornings, breakfast at dawn was the program, and it seemed not to matter to the bird if my fingers were in the box, nor if its tail brushed my fingers. Birds are notoriously careless with their tails. It seemed strange, too, how the scratch habit could not be overcome. Every few pecks, standing in this box half filled with bread crumbs, it just had to give a scratch or two, which sent the crumbs flying in every direction.

We learned to recognize a certain squeak note as a plaint for food. It was uttered when the door was closed and no food available. A bird on the window sill looking in meant "please open the door", and in it came as soon as the door did open. But while it soon learned to accept without fright our moving about, so long as we moved slowly, we could never get between it and the door. As soon as escape seemed about to be cut off, the bird calmly flew by and out the door. On occasion, a thoughtless quick motion sent it speeding toward a window, but it never actually struck the glass, for it would come up short just quick enough to avoid striking, then veer out the door.

At 11:05 A. M., on September 20, we trapped this bird to confirm our belief that it was no. 76549. The trap had been set only three minutes. Before 12:00 M., it was back in the food box on the kitchen chair within two feet of Mrs. Law, contentedly gorging itself.

Except on September 21, when it was absent all day, it remained about until late on September 27. As no other Green-tailed Towhees were seen after that and the species had been rare for two weeks, we assumed that instinct for migration had overcome pleasure of easy food.—J. EUGENE LAW, *Altadena, California, March 25, 1926.*

EDITORIAL NOTES AND NEWS

The Annual Membership roster of the Cooper Ornithological Club appearing in this issue shows a total enrollment of 905. This is a 5 per cent increase over last year, and it is, of course, a larger membership than ever before. From this we may properly conclude that the general interest in ornithology is ever increasing.

A serious loss to the Cooper Club occurred in the recent death of John Burnham at his home in San Diego. Here was a man who was a good naturalist, a loyal member of the Club, and an active supporter of various other agencies for the promotion of popular interest in birds and wild-life generally.

A fitting form of recognition, on the occasion of the 70th birthday (March 21, 1926) of our honorary member, Dr. Albert Kenrick Fisher, has been by the issuance of a list of his publications. This bibliography, compiled by Messrs. T. S. Palmer and W. L. McAtee (*Proc. Biol. Soc. Wash.*, vol. 39, 1926, pp. 21-28) lists an even 150 titles and covers a period of almost exactly 50 years comprised in Dr. Fisher's service to ornithological science.

FIRST ANNUAL MEETING OF THE COOPER ORNITHOLOGICAL CLUB, LOS ANGELES, APRIL 8-10, 1926.—As a result of the well-directed efforts of certain Southern Division members, this, the first assemblage of the Club-at-large, was successful to a degree that ensures a repetition of such meetings in future years. Three of the five sessions were held in the Los Angeles Museum of History, Science and Art, in Exposition Park. The other two, on account of the need of special facilities for the exhibition of moving pictures, were held in the State Building, but a stone's throw from the Museum.

Average attendance was from thirty to forty members, with numerous visitors; there was a marked increase in the membership present toward the end of the meeting. The torrential rains that occurred just before and at the beginning of the sessions doubtless had some effect upon the attendance; some out-of-town members were known to have started, but were kept away by the condition of the roads.

The forty-two papers formally listed for presentation made really too full a pro-

gram, had they all been presented; but, with one or two exceptions, the papers of absentees were read by title only. This permitted of time for discussion of those that were read, and this impromptu development of the program proved to be so profitable and enjoyable a feature that it should certainly receive fullest allowance in the plans of similar meetings in the future. The twenty-six papers actually read covered a fairly wide range of subjects. There were some of historical interest, some relating to field work and observations, and some of subject matter economic, educational, and systematic; some of paleontological interest, some dealing with molt, with migration, and with evolutionary speculation. In the cases of illustrated papers, the accompanying slides or moving pictures were of the highest order.

The remarkable exhibition of work of American bird artists, shown in connection with the meeting, owes its success to two factors, the enthusiastic energy of Mr. Harry Harris, and the facilities offered by the art department of the Los Angeles Museum. Three rooms were required to show the 282 pictures that made up the exhibition. Twenty-seven artists were represented. Special mention should here be made of the "Ridgway exhibit", as of great interest to ornithologists from the historic as well as the artistic side. Here were drawings made by Robert Ridgway as a small boy, the colors ground and mixed by himself in his father's drug store, and the birds that served as models shot with gunpowder that was also of home manufacture. Studies of various grades were comprised in this exhibit as well as finished paintings; and there were also early letters and notebooks.

In any such meeting as this the social features will perhaps linger in the memory longer than technical discussions or even beautiful pictures. There was abundant opportunity each day for individuals to get together, and there were informal gatherings of various sorts throughout the sessions. President and Mrs. Bishop received members and friends of the Cooper Club at their residence in Pasadena, the evening of April 8. On the evening of April 9 the Board of Governors of the Club met at the residence of Mr. Donald R. Dickey, with an attendance of fifteen members, and despite certain

distractions managed to get through with the required amount of business.

Altogether, the Cooper Club may congratulate itself upon the success of this first general meeting. Those who were present will, we believe, make every effort to attend the next one, and they will also impress those who were absent this time with the desirability of attending in the future.

THE RIDGWAY MEMORIAL.—The American Ornithologists' Union, in cooperation with the Cooper Ornithological Club and the Wilson Ornithological Club, is actively forwarding plans for a suitable memorial to the work and services of Robert Ridgway, the dean of American ornithologists. This memorial will, it is proposed, take the form of a sanctuary for birds and other wild life. A tract of land comprising eighteen acres, situated near Mr. Ridgway's home at Olney, in southern Illinois, and named by him "Bird Haven" on account of its attractiveness to bird life, is admirably adapted to this purpose. Its varied topography of little hills, ravines, streams, woods, and open grass-lands accounts for its remarkably large number of different trees, bushes and flowering herbaceous plants, and for its variety of bird life. Nearly 150 species of birds have been recorded from this area.

Mr. Ridgway has offered to donate this property for a wild life sanctuary if a fund sufficient for its maintenance can be obtained. This is therefore an unusual opportunity to save this area for the preservation of birds and plants, and at the same time to erect a fitting memorial to America's great bird lover.

A committee has been appointed to raise a fund of \$35,000 to carry out this project. This committee consists of Dr. Harry C. Oberholser, of the United States Biological Survey, Washington, D. C., chairman, representing the A. O. U.; Mr. Harry Harris, Box 123, Eagle Rock, California, representing the Cooper Ornithological Club; and Mr. Percival B. Coffin, 39 South La Salle Street, Chicago, representing the Wilson Ornithological Club. All bird lovers and all persons and organizations interested in conservation are urged to cooperate in raising the fund necessary to establish the *Bird Haven Wild Life Refuge*. Remittances should be made to the "Ridgway Memorial Fund", and may be sent to any member of the committee above named, or to the First National Bank, Olney, Illinois, which is acting as trustee.

THE SUBSPECIES QUESTION.—As the result of our request in the last issue of THE CONDOR for a straw vote on whether or not to employ species to the exclusion of subspecies in the next Avifauna, we received a total of just 27 replies within the thirty days allotted for the vote. Our first conclusion is inescapable—that the subspecies question is not, after all, a very vital matter to most persons, since only 3 per cent of the entire Cooper Club membership proved enough interested to send even a postal card. Indeed, the six members in the same building with the Editorial Office of THE CONDOR failed to vote!

Of the 25 who voted definitely, 15 were for retention of subspecies, 10 for discarding them—in a state list. So it seems that, as in a good many of the movements of the day, the large amount of noise we have heard recently merely indicates a clamorous minority. While we are thus to continue to employ subspecies, according to the system prevalent heretofore, it will be quite proper to subordinate them typographically, as in the 1910 edition of the A. O. U. Check-list. This will make it possible for those who so desire to ignore them altogether and to deal only with the full, Linnaean species; and all should be happy!

PUBLICATIONS REVIEWED

MANUAL OF THE BIRDS OF CEYLON. By W. E. WAIT. Pp. 1-496, map, 20 plates. Colombo (published by the Director, Colombo Museum), 1925. Price 15 shillings.

The avifauna of Ceylon, as here presented, consists of 372 species and subspecies of birds, a sufficiently long list, it would seem, for an island only some 260 miles long. Mr. Wait's manner of treatment of this array of birds appears to be happy and well-considered in every respect. The visiting ornithologist, confronted with unfamiliar species, will find here answers to practically all the questions he might think of asking, and the book is as well fitted to teach the resident beginner. It is, as the title claims, a "manual", and it is an excellent one.

There are keys to the species, grouped under families or subfamilies, and these keys, together with carefully worded descriptions of old and young of each species, should suffice for identification in nearly all cases. "Habits" are given relatively slight notice; that is, the paragraph so designated is no longer than the sections given to other phases of the subject. This is as it should be in a manual that is designed to give explicit information

within limited space, rather than to serve as an exposition of attractive phrasing of the reactions produced by any given bird upon the writer. Altogether, Mr. Wait's "Manual of the Birds of Ceylon" would be a most creditable piece of work for a professional ornithologist, able to devote most of his time to its accomplishment, and it is all the more so, as the production of a busy government official whose days are occupied with other things.

The book is open to criticism in one regard, in the choice of paper used, which is coated and very heavy. A lighter weight paper would be more durable and would have greatly reduced the size and weight of the volume.—H. S. SWARTH, *Berkeley, California, March 30, 1926.*

SIMMONS' BIRDS OF THE AUSTIN REGION.*—We do not recall ever having seen for any small area in the West so exhaustive a treatment of its ornithology as is comprised in this contribution from the University of Texas. In some respects, this reminds us of Brewster's "Birds of the Cambridge Region", in some other respects of Griscom's "Birds of the New York City Region". And like these works the "Birds of the Austin Region" is bound to be of very great use in stimulating and properly directing popular bird study within the territory of which it treats.

The author, Mr. George Finlay Simmons, shows in this book marked ability for organizing his material upon a consistent plan. In the main treatments of the species the classification of facts uniformly after numerous sideheads makes for quickness in comparing different birds in given respects. Another meritorious feature of this book is the evident care with which all possible sources of information, from numerous local observers as well as the published literature, have been ransacked. And a very explicit system of citing all these sources has been put into effect.

The book has a decidedly ecological tangle. The introduction is occupied largely with a consideration of the floral, physical and climatic factors bearing upon the bird-life of the Austin region; and in the species treatments there are valuable and often extended statements and analyses concerning relation to environment, as

also concerning general and feeding habits, breeding, etc. Voice is, we think, given unusually careful attention; the descriptions of songs and notes, employing to good purpose the syllabification method, are set forth accurately in many of the western species with which we happen to be familiar. There is much new to published literature in this regard.

By reason of the exhaustiveness of the introductory parts of the book, the reviewer is led to suspect that a sort of manual of general ornithology was attempted. Such headings as "How Birds are Classified" and "How Birds are Named" indicate the nature of this part of the book. Much of this matter is quite good. But it is just here that an author is most easily liable to slip up, and critical perusal brings to light a number of doubtful statements. For example (p. xxxii), we are told that "The recognition of even the most minute differences may prove of inestimable value in the study of evolution [a statement with which we heartily agree]; these slight differences may, as *decades pass by* [italics ours], be accentuated, until they may lead to the formation of easily recognized subspecies, and so into well-marked species." Here is evidently an echo of the mutation vogue; for the units of time required for the differentiation of true subspecies are undoubtedly to be computed in tens of thousands of years, probably in hundreds of thousands—rather than in "decades"!

The nomenclature adopted in the "Birds of the Austin Region" is (needlessly, it seems to us) ultra-modern, in the sense that it departs widely from the 1910 A. O. U. Check-list and succeeding supplements. The reason for this is plain, when we observe that Dr. Oberholser is, obviously, largely responsible for the names and critical comments, these latter bunched as "footnotes" toward the end of the book.

Typographical errors are in evidence here and there, but this is no fault of the author, as we understand that he has been entirely out of reach in the final stages of proof-reading. One such error (p. 43), *Zimnogeranus*, for the Whooping Crane, will doubtless be interpreted by some extremist as a new generic name!

A further indication of the variety of subject matter in Simmons' book is the "Dictionary of Ornithological Terms and Phrases" (pp. 372 ff.). A hypercritical reviewer might have some fun here at the expense of the author. But let any such reviewer try, himself, to devise accurate definitions of common ornithological terms—and become humble!

* Birds of the Austin Region | by | George Finlay Simmons, M. A. | Instructor in Zoology in the University of Texas | [seal] | Published by | The University of Texas | Austin | University of Texas Press | 1925; 8vo, pp. (2) + i - xlii + (4) + 1 - 387, numerous unnumbered figs. in text. Our copy received February 2, 1926.

Of decided human interest is the chapter (pp. xxxv ff.) entitled "Who's Who in Austin Ornithology", with accompanying portraits. Here we find concise biographies of many people known far beyond the confines of the Austin region; for example, of that thorough-going general biologist as well as ornithologist, the late Thomas H. Montgomery, Jr.; and of H. J. Kofahl, Arthur H. Howell, Henry Nehrling, A. E. Schutze, and Dr. H. Y. Benedict. We are a bit disturbed, however, by the statement under "Oberholser, Harry C(hurch)", that he is the "author of *thousands* (italics ours) of monographs and papers on birds", etc. We hate the thought of giving up our idea that Shufeldt is still in the lead as to number of titles in his personal bibliography!

To sum up, the publication of Simmons' "Birds of the Austin Region" brings permanent credit to his University, to the coterie of local ornithologists he represents, and to himself. We extend to him congratulations in behalf of westerners generally, fellow members mostly of the Cooper Ornithological Club.—J. GRINNELL, Berkeley, California, March 26, 1926.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

FEBRUARY.—The regular monthly meeting of the Cooper Ornithological Club, Northern Division, was held at the Museum of Vertebrate Zoology, Berkeley, on February 25, 1926, at 8 P. M., with President Allen in the chair and the following members present: Mesdames Allen, Bogle, Delport, Grinnell, Mead, Mexia, Mikesell; Misses Beaman, Cockefair, Fisher, Holcomb, McLellan, Pickard, Pringle, Wythe; Messrs. Borell, Bryant, Bunker, Carriger, Clabaugh, Chaney, Cooper, Cozens, Dixon, Evermann, Follett, Foster, Grinnell, Hall, Harwell, Hoffmann, Lamb, La Jeunesse, Linsdale, Perine, Streater, Swarth and Wright. Visitors were Mesdames Bryant, Bunker, Chaney, Evermann, Hall, Hoffmann, Lamb, Linsdale, Stevens and Swarth; Misses Beatty, Buckingham, Holm, Payne and Spencer; Messrs. Myers and Pursell.

Minutes of the Northern Division for January were read and approved. Minutes of the Southern Division for January were read. The membership application of Earl H. Myers, 2234 Atherton Street, Berkeley, proposed by A. E. Borell, was

read. It was announced that Wilfred H. Osgood of Chicago had found it impossible to serve on the Ridgway Memorial Committee.

The speaker of the evening was Mr. Ralph Hoffmann, Director of the Museum of Natural History at Santa Barbara. The speaker chose as his topic "Field Notes". He described the wealth of winter bird life in and about the rice fields of Colusa County, California, and mentioned many interesting traits of flocks and individuals of geese, cranes and swans. He spoke of observations made in the Puget Sound district on American and Red-breasted mergansers, Marbled Murrelets and Rhinoceros Auklets; and he concluded by reading several descriptions from the manuscript of his book, in preparation, on Pacific Coast birds. Mr. Hoffmann's hearers were much pleased with the vigor and freshness of his observations and his unusual but logical method of preceding his account of each bird with a description of the setting which characteristically frames it.

Adjourned.—HILDA W. GRINNELL, Secretary.

SOUTHERN DIVISION

JANUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, Tuesday evening, January 26, 1926, at 8 P. M. The meeting was called to order by President Wyman with the following members present: Miss Potter; Mesdames Edwards, Ellis, Everhart; Messrs. Allen, Cantwell, Colburn, Hanaford, Michener, A. H. Miller, Dr. Miller, Peterson, and Webster. Visitors were Misses Lempie and Vignos; Mrs. Wyman; Messrs. Booth, Carl Chambers, Edwards, and Everhart. The December minutes were read and approved. The December minutes of the Northern Division were read by title only.

New names proposed for membership were as follows: Mrs. Jean E. Carth, P. O. Box 1, Huntington Park, Calif.; Warren Francis Eaton, care Wellington, Sears & Co., 66 Worth St., New York City; Winton Weydemeyer, Agricultural Substation, Moccasin, Montana; and William H. Yoder, Jr., 4510 N. Carlisle St., Philadelphia, Pa., by W. Lee Chambers; Mrs. Percival B. Coffin, 5708 Kenwood Ave., Chicago, Ill., by Chreswell J. Hunt; Charles H. Snell, Box 101, Red Deer, Alta., Canada, by William Rowan; Shumway Suffel, 105 So. Madison Ave., Pasadena, Calif., by Roland C. Ross; Blanche Vignos,

667 So. Carondelet St., Los Angeles, Calif., by Jessica A. Potter; P. Smith Walker, 2127 Cypress St., Vancouver, B. C., Canada, by John McB. Robertson.

A letter was read from Dr. Evermann to the Northern Division in which Dr. Evermann expressed his sincere appreciation of the honorary membership conferred upon him. Notice was received that Mr. Ruthven Deane would be unable to represent the Cooper Ornithological Club at the Ridgway Bird Sanctuary Convention. On the motion of Dr. Miller, duly seconded and carried, the appointment of another representative was left to be decided by the Northern Division, in as much as that division had taken the initial step in the matter.

In the absence of Dr. Rich, chairman of the nominating committee, Mr. Chambers reported nominations as follows: President, Dr. Louis B. Bishop; Vice-President, J. S. Appleton; Secretary, Alden H. Miller. The nominations were moved closed and the secretary instructed to cast his ballot in favor of the nominees. The motion was made by Dr. Miller, seconded by Mr. Michener, and carried.

Mr. Frederick S. Webster then gave an interesting talk concerning the feelings of birds and their mental traits, illustrated by many interesting stories gained from personal study of caged birds. The talk was followed by questions and discussion of matters brought to members' attention by Mr. Webster. Adjourned.—ALDEN H. MILLER, *Secretary*.

FEBRUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, February 23, 1926, at 8 P. M. The meeting was called to order by President Bishop with thirty-five members and visitors present. Minutes of the January meeting were read and approved, and the January minutes from the Northern Division were read.

The following names were submitted for membership: Edward J. Booth, 303 W. 3rd St., San Dimas, Calif.; Curtis D. Hillyer, Scripps Bldg., San Diego, Calif.; and Francis Beach White, Concord, New Hampshire, by W. Lee Chambers; Edward C. Bull, 510 So. Madison Ave., Pasadena, Calif., by Myrtle S. Edwards; Mrs. Etta MacIntyre, 1820 Bushnell St., So. Pasadena, Calif., by Roland C. Ross; Miss Gladys E. Record, 44 Fairview Ave., Los Gatos, Calif., by Miss Emily Smith; Rob-

ert P. Rowley, 1172 W. 29th St., Los Angeles, Calif., by Alden H. Miller; and George Buchanan Simpson, Lake Cowichan, British Columbia, Canada, by John McB. Robertson.

Mr. Law read a letter from Mrs. M. H. Wegener, 2215 S. Date Ave., Alhambra, Calif., asking that she be dropped from the club. On motion of Dr. Miller the club voted to accept the resignation.

Dr. Miller reported the action of the program committee for the first annual meeting, stating that few papers had at the time been promised and that many more would be needed. Members were urged to mail the printed cards, with the titles of their papers, to Dr. Miller as soon as possible.

The speaker of the evening, Dr. Wilkenson of Australia, gave an account of certain birds and mammals of Australia, illustrated by a series of lantern slides. Of particular interest was his discussion of the Monotremata and Marsupialia and their adaptations in an environment where there was no competition from higher forms. The danger of introducing new species into Australia was emphasized, as also the need for maintaining the balance of nature. Pictures of the great Australian Eagle showing the nest and young, and an account of the incubator nest of the Brush Turkey were of special interest. The meeting was closed with the usual discussion between members.—Adjourned.—ALDEN H. MILLER, *Secretary*.

DIRECTORY OF MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB

Revised to April 15, 1926

OFFICERS

NORTHERN DIVISION

Amelia S. Allen, President
Henry W. Carriger, Vice-President
Hilda Wood Grinnell, Secretary

SOUTHERN DIVISION

Louis B. Bishop, President
J. S. Appleton, Vice-President
Alden Holmes Miller, Secretary

EDITORS

Joseph Grinnell
Harry S. Swarth

BUSINESS MANAGERS

W. Lee Chambers
Harry Harris

ENDOWMENT SECRETARY

Donald R. Dickey

BOARD OF GOVERNORS

Loye H. Miller, President
Tracy I. Storer, Permanent Secretary

The above officers, together with the following ex-presidents (not included above, all those whose membership has been continuous since incumbency), constitute the Board of Governors of the Club.

Ralph Arnold, Harold C. Bryant, Herbert L. Coggins, J. S. Cooper, Joseph S. Dixon, Barton Warren Evermann, Walter K. Fisher, Oza W. Howard, W. B. Judson, C. B. Lastreto, J. Eugene Law, Joseph Mailliard, G. Frean Morcom, Wilfred H. Osgood, Wright M. Pierce, Guy C. Rich, Howard Robertson, Curtis Wright, L. E. Wyman.

MEMBERS

In the following roster, year following address indicates date that member joined the Club; year in parenthesis indicates date member became honorary or life member. Asterisk (*) preceding indicates life member; § indicates contributor to Endowment Fund.

HONORARY MEMBERS

*§Bailey, Florence M. (Mrs. Vernon), 1834 Kalorama Road, Washington, D. C. 1910 (1920) (1920).
Evermann, Dr. Barton W., Calif. Acad. Sciences, San Francisco, Calif. 1911 (1926).
Fisher, Dr. A. K., Biol. Survey, Washington, D. C. 1904 (1924).
Henshaw, Henry W., Biol. Survey, Washington, D. C. 1909.
*§Mailliard, Joseph, 1815 Vallejo St., San Francisco, Calif. 1895 (1920) (1924).
Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.
*§Morcom, G. Frean, 243 N. Coronado St., Los Angeles, Calif. 1904 (1915) (1922).
Nelson, Dr. E. W., Biol. Survey, Washington, D. C. 1904 (1917).
Ridgway, Robert, Route 7, Olney, Ill. 1905.
§Stephens, Frank, Natural History Museum, Balboa Park, San Diego, Calif. 1894 (1912).

ACTIVE MEMBERS

Abbott, Clinton G., Nat. Hist. Museum, Balboa Park, San Diego, Calif. 1921.
Abernathy, Frieda (Mrs. St. E.), 1726 Virginia St., Berkeley, Calif. 1914.
Abernethy, Mrs. Martin, Box 282, Claremont, Calif. 1925.
Adams, Benjamin, Wethersfield, Conn. 1920.
Adams, Frank O., Canfield, West Vancouver, B. C. 1922.
Adams, Miss Romola M., 912 Linden Ave., Long Beach, Calif. 1921.
Aitken, Drummond, 766 Milwaukee St., Denver, Colorado. 1924.
*Alexander, Miss Annie M., Suisun, Calif. 1908 (1923).
Allen, Mrs. Amelia S., 37 Mosswood Road, Berkeley, Calif. 1913.
Allen, Dr. Arthur A., McGraw Hall, Ithaca, N. Y. 1911.

Allen, Dr. Glover M., Museum of Comparative Zoology, Cambridge, Mass. 1925.
Allen, Walter I., Route 2, Box 651, Pasadena, Calif. 1922.
Anderson, Edwin C., Dill Rapids, So. Dakota. 1925.
Anderson, Elizabeth G., 1030 Cragmont Ave., Berkeley, Calif. 1920.
Anderson, Dr. Rudolph M., Biol. Div., Victoria Memorial Museum, Ottawa, Ont., Canada. 1916.
Aniotzbehere, Mrs. Julius H., 128 John St., Salinas, Calif. 1926.
Anthony, A. W., Nat. Hist. Museum, Balboa Park, San Diego, Calif. 1921.
Anthony, Mrs. Joseph, 1208 Fuller Ave., Hollywood, Calif. 1922.
Applegate, Elmer I., Klamath Falls, Ore. 1921.
*Appleton, J. S., 1332 Citrus Ave., Hollywood, Calif. 1901 (1919).
Archilles, Mrs. Gertrude Strong, Fountain Oaks, Morgan Hill, Calif. 1925.
Armstrong, Edward E., 2249 Calumet Ave., Chicago, Ill. 1914.
Arnold, E., Grand Trunk Ry., Montreal, Que., Canada. 1909.
Arnold, Mrs. Lewis, Box 61A, Fair Oaks, Sacramento Co., Calif. 1921.
Arnold, Dr. Ralph, 639 S. Spring St., Los Angeles, Calif. 1893.
Atkinson, Dr. Spencer R., Pacific Southwest Bank Bldg., Pasadena, Calif. 1925.
Atkinson, W. L., 35 Hawthorne Way, San Jose, Calif. 1901.
Atsatt, Miss Sarah R., 345 S. Serrano Ave., Los Angeles, Calif. 1911.
Austin, Miss Dorothy K., 1121 Arden Road, Pasadena, Calif. 1921.
Averill, Charles Ketchum, 1075 Iranistan Ave., Bridgeport, Conn. 1922.
Badè, Dr. Wm. F., 2616 College Ave., Berkeley, Calif. 1903.
Badger, M. C., Santa Paula, Calif. 1915.
Bailey, Alfred M., Colo. Museum Nat. Hist., Denver, Colo. 1917.
Bailey, Bernard, R. D. 1, Elk River, Minn. 1911.
Bailey, H. H., 204 Professional Bldg., Miami, Florida. 1903.
Bailey, Vernon, 1834 Kalorama Road, Washington, D. C. 1904.
Baker, Chas. H., 594 13th St., Oakland, Calif. 1921.
*§Baldwin, S. P., 11025 East Boulevard, Cleveland, Ohio. 1920 (1920).
§Bales, Dr. B. R., 149 W. Main St., Circleville, Ohio. 1906.
Ball, Wm. H., Eureka, Calif. 1922.
Ball, Wm. Howard, 1233 Irving St., N. W., Washington, D. C. 1926.
Ballard, Mrs. Maria V., 701 Post St., San Francisco, Calif. 1919.
Bamford, Mrs. G. L., 1428 Castro St., Oakland, Calif. 1918.
Bancroft, Griffing, 2525 First St., San Diego, Calif. 1920.
§Bangs, Outram, Museum Comp. Zool., Cambridge, Mass. 1906.
Barker, Fred, Parkers Prairie, Minn. 1914.

- Barker, John P., 460 Cypress Ave., Burbank, Calif. 1926.
- Barnes, C. A., 1815 S. Western Ave., Los Angeles, Calif. 1921.
- Barnes, Claude T., 359 10th Ave., Salt Lake City, Utah. 1915.
- Barnes, Frances V., 1815 S. Western Ave., Los Angeles, Calif. 1921.
- *Barnes, R. Magoon, Lacon, Ill. 1908 (1921).
- Bartlett, Mrs. Adelaide R., Assessor's Office, City Hall, San Francisco, Calif. 1922.
- Bassett, F. N., 1338 8th St., Alameda, Calif. 1919.
- Bastin, Catharine S., 1207 Bonita Ave., Berkeley, Calif. 1926.
- Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.
- Bates, Josephine J., 1267 Sunset Ave., Pasadena, Calif. 1921.
- Battles, Carroll David, 2527 S. Dunsmuir Ave., Los Angeles, Calif. 1924.
- Baxter, Philip Norman, 159 Churchill Ave., Palo Alto, Calif. 1924.
- Baynard, Oscar E., Box 104, Plant City, Florida. 1924.
- Beaman, Susan E., 2425 Hearst Ave., Berkeley, Calif. 1923.
- Beattie, S. H., Tubac, Ariz. 1924.
- *Beck, Rollo H., R. D. 21, San Jose, Calif. 1894 (1919).
- Beebe, Wm., 33 West 67th St., New York, N. Y. 1926.
- Bell, B. C., 235 8th St., San Francisco, Calif. 1919.
- Benjamin, Elbert, 117 Coral St., Los Angeles, Calif. 1920.
- Bennet, Eleanor V. V., 2445 Woolsey St., Berkeley, Calif. 1920.
- *Bent, A. C., 140 High St., Taunton, Mass. 1909 (1922).
- Bergtold, Dr. W. H., 1159 Race St., Denver, Colo. 1917.
- Berry, Elverton C., Box 234, Conway, New Hampshire. 1925.
- Betterley, Bertram O., 2005 2nd St., Eureka, Calif. 1922.
- Bicknell, Mrs. F. T., 319 S. Normandie Ave., Los Angeles, Calif. 1913.
- Bigelow, Homer L., 37 Old Orchard Road, Chestnut Hill, Mass. 1910.
- *Bishop, Dr. Louis B., 450 S. Bradford St., Pasadena, Calif. 1904 (1920).
- Blackwelder, Miss Martha Jean, Box N N, Stanford University, Calif. 1925.
- Blake, Mrs. Edwin T., R.F.D. 1, Box 34, Berkeley, Calif. 1917.
- Blayney, Nita A., 920 O St., Fresno, Calif. 1911.
- Blickensderfer, Clark, 850 Grant St., Denver, Colo. 1922.
- Bliss, John D., Pozo, San Luis Obispo Co., Calif. 1916.
- Bliss, Leslie Edgar, R.F.D. 3, Box 158-A, Pasadena, Calif. 1923.
- Boeing, W. E., The Highlands, R. D. 2, Seattle, Wash. 1914.
- Boettner, Henry, 127 N. Murat St., New Orleans, La. 1925.
- Bogle, Mrs. Sara S., 2951 Linden Ave., Berkeley, Calif. 1921.
- Bolander, L. Ph., Jr., 1947 E. 28th St., Oakland, Calif. 1907.
- Bolt, B. F., 1421 Prospect Ave., Kansas City, Mo. 1916.
- Booth, Edward J., 303 W. 3rd St., San Dimas, Calif. 1926.
- Borell, Adrey E., 2149 Blake St., Berkeley, Calif. 1918.
- Bowdish, B. S., Demarest, N. J. 1910.
- Bowles, J. H., The Woodstock, Tacoma, Wash. 1903.
- Boyle, Ashby D., 380 E St., Salt Lake City, Utah. 1915.
- Boyle, Miss Una, Calpella, Calif. 1921.
- Bradford, Chas. H., 852 E. 5th St., Pomona, Calif. 1925.
- Braislin, Dr. William C., 425 Clinton Ave., Brooklyn, N. Y. 1910.
- Bramkamp, Richard, Banning, Calif. 1921.
- Brandreth, Courtney, Ossining, New York. 1925.
- Brandt, H. W., 2025 E. 88th St., Cleveland, Ohio. 1914.
- Bremer, Bernhard Charles, 516 Battery St., San Francisco, Calif. 1925.
- Briggs, Dr. LeRoy H., 2635 Broderick St., San Francisco, Calif. 1926.
- *Brooks, Allan, Okanagan Landing, B. C., Canada. 1906 (1920).
- Brooks, L., Box 539, New Bedford, Mass. 1913.
- Brooks, Winthrop Sprague, Boston Soc. Nat. Hist., 234 Berkeley St., Boston, Mass. 1923.
- Brown, D. E., 87 Lenora St., Seattle, Wash. 1909.
- *Brown, Edward J., Box 99, Eustis, Lake County, Fla. 1915 (1919).
- Brown, Mrs. Herbert, 434 E. 2nd St., Tucson, Ariz. 1914.
- Brown, Nellie May, 354 North Ave. 53, Los Angeles, Calif. 1922.
- Brown, Mrs. Wm. Clark, 945 Orange St., Los Angeles, Calif. 1921.
- Bruce, Miss Bess M., Glendora, Calif. 1924.
- Bruce, Walter, 813 Lincoln Place, Spokane, Wash. 1924.
- Bruner, Stephen C., Estacion Agronomica, Santiago de las Vegas, Cuba. 1925.
- Brunn, Chas. A., 512 Reliance Bldg., Kansas City, Mo. 1925.
- Bryan, William Alanson, Museum Hist., Sci., and Art, Los Angeles, Calif. 1921.
- Bryant, Chas. A., Room 1011 S. P. Bldg., 65 Market St., San Francisco, Calif. 1922.
- *Bryant, Dr. Harold C., Museum Vert. Zool., Berkeley, Calif. 1910 (1925).
- Buhn, Mrs. Minnie, 3027 60th Ave., Oakland, Calif. 1921.
- Bull, Daniel Bernard, 920 Kellar Ave., San Jose, Calif. 1919.
- Bull, Edward C., 510 S. Madison Ave., Pasadena, Calif. 1926.
- Bunker, Paul F., 1151 Shattuck Ave., Berkeley, Calif. 1922.
- Burk, Genevieve S., 1601 Oxford St., Berkeley, Calif. 1920.

- Burleigh, Thos. D., Univ. Ga., Athens, Ga. 1918.
- Burnell, Miss Elizabeth, 1029 Spaulding Ave., Los Angeles, Calif. 1921.
- Burnett, W. L., State Agr. Coll., Fort Collins, Colo. 1910.
- Burnham, Dr. Clark, 835 Arlington Road, Berkeley, Calif. 1907.
- Burns, Frank L., Berwyn, Pa. 1909.
- Burns, James R., 645 44th St., Des Moines, Ia. 1922.
- Burtch, Verdi, Branchport, N. Y. 1910.
- Cahn, Alvin R., 1117 W. Nevada St., Urbana, Ill. 1922.
- Cain, Brighton C., 221 Thayer Bldg., Oakland, Calif. 1925.
- Calder, James A., Buena Park, Calif. 1917.
- Calder, Mrs. James A., Buena Park, Calif. 1926.
- Caldwell, Harry R., Box A10, Ketchikan, Alaska. 1925.
- Camp, Dr. Chas. L., Bacon Hall, Univ. Calif., Berkeley, Calif. 1909.
- Campbell, R. A., R. R. Box 188, Burbank, Calif. 1922.
- Canby, Caroline P., San Fernando, Calif. 1921.
- Canfield, Mrs. May, 3672 Florida St., San Diego, Calif. 1922.
- Cantelow, Mrs. E. D., Hotel Whitcomb, San Francisco, Calif. 1923.
- Cantelow, H. C., Hotel Whitcomb, San Francisco, Calif. 1923.
- Cantwell, George G., 7287 Keystone Ave., Palms, Calif. 1915.
- Carpenter, George I., 746 Lincoln Place, Brooklyn, N. Y. 1920.
- Carpenter, N. K., 3775 Kite St., San Diego, Calif. 1901.
- Carriger, H. W., 5185 Trask St., Oakland, Calif. 1895.
- Carth, Mrs. Jean E., Box 1, Huntington Park, Calif. 1926.
- Case, Rev. B. F., Windsor, Conn. 1913.
- Case, C. M., 306 Blue Hills Ave., Hartford, Conn. 1911.
- §Chamberlain, C. W., 36 Lincoln St., Boston, Mass. 1912.
- *Chambers, W. Lee, Eagle Rock, Calif. 1897 (1919).
- Chaney, Dr. Ralph W., 1129 Keith Ave., Berkeley, Calif. 1923.
- Chapman, Dr. Frank M., Amer. Museum Nat. Hist., New York, N. Y. 1903.
- Cheesman, M. R., 1328 Gower St., Hollywood, Calif. 1919.
- Cheney, E. S., 1838 4th Ave., Oakland, Calif. 1920.
- Cheney, Miss Mary, 48 Hartford Road, So. Manchester, Conn. 1919.
- Clabaugh, E. D., 18 Lennox Road, Berkeley, Calif. 1923.
- Clark, Prof. Harold W., La Jota, Napa County, Calif. 1925.
- Clark, Josiah H., 641 14th Ave., Paterson, N. J. 1910.
- Clarke, Miss Mary S., Maplewood, Pittsfield, Mass. 1925.
- Clay, C. Irvin, Box 353, Eureka, Calif. 1910.
- Cleaves, Howard H., 242 W. 109th St., New York, N. Y. 1921.
- Clyde, Norman, Independence, Inyo County, Calif. 1926.
- Coale, Henry K., Highland Park, Ill. 1907.
- Cockefair, Miss Ellen A., 2415 Telegraph Ave., Oakland, Calif. 1925.
- Coffin, Mrs. Percival, 5708 Kenwood Ave., Chicago, Ill. 1926.
- Coggins, Herbert L., 2929 Piedmont Ave., Berkeley, Calif. 1910.
- Cohen, Donald A., 2618 Lincoln St., Alameda, Calif. 1901.
- Cohn, Mrs. Effie C., Key Route Inn, Oakland, Calif. 1923.
- *§Colburn, Albert E., 716 S. Flower St., Los Angeles, Calif. 1905 (1915).
- Cole, Mrs. Arthur H., Hotel Whitecotton, Berkeley, Calif. 1917.
- Cole, F. R., Box 491, Orlando, Fla. 1922.
- Cole, John L., R.D. 5, Nevada, Ia. 1922.
- Comstock, Dr. John, Southwest Museum, Los Angeles, Calif. 1920.
- *§Conover, H. B., 6 Scott St., Chicago, Ill. 1924.
- Cook, Fred'k W., 1604 E. Harrison St., Seattle, Wash. 1919.
- Cook, Miss Inez, Glendora, Calif. 1924.
- Cooke, Miss May T., 2572 University Place, Washington, D. C. 1918.
- Cookman, Alfred, 938 E. Dryden St., Glendale, Calif. 1912.
- Cooper, J. S., 310 Howard Ave., Piedmont, Calif. 1903.
- Copeland, Ada Belle, 1103 White Ave., Grand Junction, Colo. 1924.
- Cordier, A. H., 415 Benton Boulevard, Kansas City, Mo. 1924.
- Corwin, Ada Bell, Hot Springs, Tulare Co., Calif. 1925.
- Covel, Paul F., 4350 Cleveland Ave., San Diego, Calif. 1925.
- Cozens, Harold H., 1631 Posen Ave., Berkeley, Calif. 1921.
- Craig, Agnes Somerville, 1221 Summit Ave., Pasadena, Calif. 1923.
- Craven, Jesse T., 8935 Colfax St., Detroit, Mich. 1909.
- Crockett, Harry L., 38 Indianola Ave., Phoenix, Ariz. 1924.
- Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.
- Crow, Mrs. G. Maurice, Glendora, Calif. 1923.
- Crum, Ethel, Box 92, Concord, Calif. 1920.
- Culver, Geo. B., Stanford University, Calif. 1921.
- Culver, Susan B., 2423 Prospect St., Berkeley, Calif. 1914.
- Cummings, Byron, Univ. Ariz., Tucson, Ariz. 1916.
- Cunningham, Walter, 3009 Dunham Ave., Kansas City, Mo. 1921.
- Currier, Ed. S., 416 E. Chicago St., St. Johns Sta., Portland, Ore. 1904.
- Danforth, Stuart T., Dept. of Biology, Temple University, Philadelphia, Pa. 1925.
- Davenport, Mrs. Elizabeth B., Northern Ave., Brattleboro, Vt. 1911.

- Davenport, Mrs. W. S., 2730 Stuart St., Berkeley, Calif. 1922.
- Davis, Dr. Frederick B., 421 Perkins St., Oakland, Calif. 1916.
- Davis, Henry W., Seaside Hotel, Atlantic City, N. J. 1922.
- Davis, John M., 737 M St., Eureka, Calif. 1908.
- Davis, Minot, 701 North E St., Tacoma, Wash. 1924.
- Davy, Geo. L., Antler, North Dakota. 1925.
- *Dawson, W. Leon, R.D. 3, Box 83, Santa Barbara, Calif. 1906 (1915).
- Deane, Ruthven, 112 W. Adams St., Chicago, Ill. 1904.
- Deane, Walter, 29 Brewster St., Cambridge, Mass. 1907.
- Dearborn, Dr. Ned, Sackett Harbor, N. Y. 1909.
- Decker, F. R., Kiona, Wash. 1913.
- DeGroot, Dudley S., 332 Channing Ave., Palo Alto, Calif. 1916.
- deLaubenfels, Max Walker, 1499 E. Walnut St., Pasadena, Calif. 1921.
- Delpport, Mrs. Mary E., 1601 Oxford St., Berkeley, Calif. 1923.
- DeLury, Ralph E., Dominion Observatory, Ottawa, Ontario, Canada. 1926.
- Denny, Judge Thos. C., Sonoma, Calif. 1924.
- Deweese, Miss Elizabeth, Whitehead Rd. and Marshall St., Norristown, Pa. 1922.
- Dickens, Charles, Key Route Inn, Oakland, Calif. 1923.
- Dickenson, A. B., R.D. 1, Box 11B, San Gabriel, Calif. 1916.
- Dickenson, Mrs. A. B., R.D. 1, Box 11B, San Gabriel, Calif. 1919.
- *§Dickey, Donald R., 514 Lester Ave., Pasadena, Calif. 1910.
- Dickey, Mrs. Florence V. V., 514 Lester Ave., Pasadena, Calif. 1923.
- Dille, F. M., Valentine, Neb. 1903.
- Dings, G. M., 2161 Ry. Exch. Bldg., St. Louis, Mo. 1920.
- Dixon, James Benjamin, Escondido, Calif. 1924.
- Dixon, Joseph, Museum Vert. Zool., Berkeley, Calif. 1904.
- Dodge, Laura I., 3031 Eliot St., Long Beach, Calif. 1915.
- Doolittle, E. A., Box 44, Painesville, Ohio. 1918.
- Drachman, Myra, 3031 Eliot St., Long Beach, Calif. 1915.
- DuBois, Alexander Dawes, 327 S. Glenwood Ave., Springfield, Ill. 1911.
- Duer, Craig R., 830 Washington Blvd., Grants Pass, Ore. 1924.
- Dunkelberger, Harry Warren, Flourtown, Montgomery Co., Pa. 1924.
- Duprey, H. F., Dixon, Calif. 1907.
- Durfee, Owen, 727 Madison St., Fall River, Mass. 1911.
- Dutton, P. C., 65 High St., Stone Staffs, England. 1913.
- Dwight, Dr. Jonathan, Jr., 43 W. 70th St., New York, N. Y. 1904.
- Dyke, Mrs. Estelle D., 405 E. Stocker St., Glendale, Calif. 1923.
- Dyson, James Seabrook, The Army and Navy Club, Pall Mall, P. T. O., London, S. W. 1, England. 1924.
- Easton, Mrs. Jane F., Torrey Road, La Jolla, Calif. 1920.
- Eaton, S. Harrison, Box 653, Lawrenceville, Ill. 1916.
- Eaton, Warren F., care Wellington Sears & Co., 66 Worth St., New York, N. Y. 1926.
- Edson, J. M., Marietta Road, Bellingham, Wash. 1911.
- Edwards, Myrtle S., 2311 N. Allen Ave., Altadena, Calif. 1925.
- *Eggleston, J. W., Junior College, Riverside, Calif. 1913 (1919).
- Ellis, Mrs. Ella Haines, 910 Grattan St., Los Angeles, Calif. 1922.
- Ellis, Ralph, 2420 Ridge Road, Berkeley, Calif. 1923.
- Ellis, Ralph, Jr., 2420 Ridge Road, Berkeley, Calif. 1923.
- Elmore, Louis A., 1420 Josephine St., Berkeley, Calif. 1920.
- *Emerson, W. Otto, Palm Cottage, Hayward, Calif. 1920 (1921).
- English, Thomas A., 2001 Haste St., Berkeley, Calif. 1923.
- Enochs, Rex P., 1155 Mullen Ave., Los Angeles, Calif. 1921.
- Erichsen, W. J., 2311 Barnard St., Savannah, Ga. 1925.
- Esterly, Dr. C. O., Occidental College, Los Angeles, Calif. 1908.
- Evans, Ella A., Exeter, Calif. 1922.
- Evans, Frank C., Crawfordsville, Ind. 1918.
- Evans, J. Harold, R.D. 4, Box 500, Santa Rosa, Calif. 1917.
- Evans, Wm. V., Livingston, Mont. 1920.
- Everhart, Mrs. Helen, 750 E. Colorado St., Pasadena, Calif. 1925.
- Fargo, Mrs. Minerva J., 1632 N. Kingsley Drive, Los Angeles, Calif. 1914.
- Farley, Frank La Grange, Camrose, Alberta, Canada. 1923.
- Faulconer, Thomas N., San Diego Zoological Gardens, Balboa Park, San Diego, Calif. 1925.
- Felger, A. H., North Side High School, Denver, Colo. 1920.
- *Ferguson, Mrs. Aurelia B., 999 Gramercy Drive, Los Angeles, Calif. 1922 (1922).
- Ferguson, Mrs. Mary Van E., 1 Orchard Lane, Berkeley, Calif. 1915.
- Ferriss, James H., West Park, Joliet, Ill. 1923.
- Field, Clyde, 1859 Julian Ave., San Diego, Calif. 1919.
- Figgins, J. D., Colorado Museum Nat. History, Denver, Colo. 1925.
- Finley, Wm. L., Jennings Lodge, Ore. 1900.
- Fischer, Otto, Trinidad, Cuba. 1926.
- Fisher, Miss Edna M., 2410 Fulton St., Berkeley, Calif. 1923.
- Fisher, Miss Elizabeth W., 2222 Spruce St., Philadelphia, Pa. 1910.
- Fisher, Prof. Walter K., Stanford Marine Laboratory, Pacific Grove, Calif. 1900.

- Fleming, J. H., 267 Rusholme Road, Toronto 4, Ont., Canada. 1910.
- Fletcher, L. B., 54 Cotswald Road, Brookline, Mass. 1922.
- Fletcher, Lyle R., 1202 Kentucky St., Lawrence, Kan. 1920.
- Flinn, Catherine Mills, 1799 University Ave., Berkeley, Calif. 1920.
- Floyd, Charles Benton, 454 Wolcott St., Auburndale, Mass. 1922.
- Flynn, Helen, 1546 Shattuck Ave., Berkeley, Calif. 1920.
- Follett, W. I., 3621 Broadway, Oakland, Calif. 1926.
- Forbush, E. H., State House, Boston, Mass. 1916.
- Forrest, Earle R., 205 N. Main St., Washington, Pa. 1910.
- Fortiner, John C., Box 496, Brawley, Calif. 1910.
- Foster, Goodwin L., 1124 Keeler Ave., Berkeley, Calif. 1925.
- Foster, Miss Rhoda, 721 Peralta Ave., Berkeley, Calif. 1924.
- Fowler, Frederick H., 221 Kingsley Ave., Palo Alto, Calif. 1901.
- Frank, Arthur W., Wash. Exp. Sta., Puyallup, Wash. 1920.
- Frazer, J. Thomas, Jr., 432 W. Hawthorne St., Eureka, Calif. 1920.
- Frederick, Mrs. Adeline, 1201 Henry St., Berkeley, Calif. 1922.
- French, Mrs. A. J., Carlton, Ore. 1921.
- French, Dr. C. E., 62 Holyrood Ave., Lowell, Mass. 1926.
- French, James G., The Menagerie, 3628 Saanich Road, Victoria, B. C., Canada. 1918.
- Frye, Prof. T. C., Univ. Wash., Seattle, Wash. 1919.
- Fuertes, Louis A., 201 Wyckoff Ave., Ithaca, N. Y. 1904.
- Gabrielson, Ira N., 515 P. O. Bldg., Portland, Ore. 1919.
- Gallup, Frederick Norman, Escondido, Calif. 1921.
- Ganier, Albert F., 2507 Ashwood Ave., Nashville, Tenn. 1921.
- Garber, Miss Lida J., 15 Tanglewood Road, Berkeley, Calif. 1923.
- Gartrell, Geo. N., Summerland, B. C., Canada. 1917.
- Gault, Benj. T., 564 N. Main St., Glen Ellyn, DuPage Co., Ill. 1905.
- Gausebeck, A. T., 60 Broadway, New York City, N. Y. 1924.
- Gay, Harold S., 200 S. Wilson Ave., Alhambra, Calif. 1901.
- Gay, Karl E., 1850 Montecito Way, San Diego, Calif. 1925.
- Geiselhart, Miss Josephine, Concord, Calif. 1920.
- Gentry, Howard S., Westmoreland, Calif. 1925.
- Giannini, Chas. A., Poland, N. Y. 1919.
- Giddings, Levi A., 436 Douglas Ave., Salt Lake City, Utah. 1923.
- Gifford, Dr. Harold, 3636 Burt St., Omaha, Neb. 1916.
- Gignoux, Claude, 73 Tunnel Road, Berkeley, Calif. 1919.
- Gilchrist, Francis G., Dept. of Zoology, Pomona College, Claremont, Calif. 1920.
- Giles, Roscoe I., 82 Newton St., Marlborough, Mass. 1917.
- Gilman, M. French, Banning, Calif. 1901.
- Girvin, F. H., 5635 Melrose Ave., Los Angeles, Calif. 1919.
- Goelitz, Herman, 944 Alameda Drive, Portland, Ore. 1920.
- *Goelitz, Walter A., 170 Nunda Blvd., Rochester, N. Y. 1915 (1920).
- Goldfrank, Arthur, 1107 S. Windsor Blvd., Los Angeles, Calif. 1925.
- Goldman, E. A., Biol. Survey, Washington, D. C. 1901.
- Goldman, Luther J., Biological Survey, Gooding, Idaho. 1902.
- Goodcell, Mrs. Marion L., 864 D St., San Bernardino, Calif. 1914.
- Grant, U. S., 4th, 639 S. Wilton Place, Los Angeles, Calif. 1909.
- Greene, Harold H., 814 Virginia Ave., Columbia, Mo. 1925.
- Gregory, Stephen S., Jr., 345 Barry Ave., Chicago, Ill. 1924.
- Grey, Henry, R.D. 2, Box 154A, San Diego, Calif. 1901.
- Griffie, Willet E., Forest Products Lab., Madison, Wis. 1919.
- Grimes, Samuel A., R.R. No. 6, Box 391, Jacksonville, Fla. 1924.
- Grinnell, Dr. George Bird, 238 E. 15th St., New York, N. Y. 1914.
- *Grinnell, Hilda Wood, 1794 San Lorenzo Ave., Berkeley, Calif. 1912 (1921).
- *Grinnell, Prof. Joseph, Museum Vert. Zoology, University of Calif., Berkeley, Calif. 1894 (1919).
- Grinnell, Willard Fordyce, 1794 San Lorenzo Ave., Berkeley, Calif. 1921.
- Gross, Prof. Alfred O., Bowdoin College, Brunswick, Maine. 1923.
- Gunn, Miss Amy E., 2758 Green St., San Francisco, Calif. 1914.
- Gunthorp, Prof. Horace, Mills College, Calif. 1920.
- Hague, Florence S., Oreg. State Agr. Coll., Corvallis, Oreg. 1925.
- Haley, Geo., 2311 Bancroft Way, Berkeley, Calif. 1925.
- Hall, Ansel F., 957 Regal Road, Berkeley, Calif. 1926.
- Hall, Mrs. Carlotta C., 1615 La Loma Ave., Berkeley, Calif. 1915.
- Hall, Mrs. C. H., 2141 N. Highland Ave., Los Angeles, Calif. 1921.
- Hall, E. Raymond, Museum Vert. Zool., Berkeley, Calif. 1924.
- Halladay, Daniel S., 628 E. Chestnut Ave., Santa Ana, Calif. 1910.
- Halleck, Taylor H., Newport, Ore. 1923.
- Hallinen, J. E., Cooperton, Kiowa Co., Okla. 1921.
- Hampton, Mrs. Ethel C., 73 Leese St., San Francisco, Calif. 1914.
- Hanaford, A. W., 4540 West 107th St., Inglewood, Calif. 1917.

- Hands, Frank H., Dos Cabezos, Ariz. 1920.
 Hann, H. H., Parkdale, Ore. 1909.
 Hanna, Dr. G. Dallas, Calif. Acad. Sciences, San Francisco, Calif. 1921.
 *Hanna, W. C., 141 East F St., Colton, Calif. 1902 (1921).
 Harding, Mrs. Harriett Squier, Fellows, Calif. 1924.
 Harding, Richard B., 107 W. Canton St., Boston, Mass. 1925.
 Harper, Francis, 234 Berkeley St., Boston, Mass. 1920.
 *Harris, Harry, 18 W. 52d St., Kansas City, Mo. 1914 (1919).
 Hart, Cecil, R.R. No. 1, Box 432, Montebello, Calif. 1920.
 Hartman, Paul J., 1118½ Maple Ave., Los Angeles, Calif. 1917.
 Hartung, Miss Esther, 124 Mill St., Grass Valley, Calif. 1923.
 Harwell, Charles Albert, 2626 Haste St., Berkeley, Calif. 1925.
 Hasbrouck, Henry C., 929 West End Ave., New York City. 1926.
 Haskett, Mrs. Bert, Box 95A, Route 2, Phoenix, Ariz. 1925.
 Hatch, Delos, Oakfield, Wis. 1926.
 Hathaway, Harry S., Norwood and Thorn Aves., South Auburn, R. I. 1912.
 Havemeyer, Henry O., Mahwah, N. J. 1917.
 Haven, Herbert M. W., 500 Forest Avenue, Portland, Maine. 1926.
 Hayes, Mrs. F. M., Box 591, Davis, Calif. 1919.
 Haywood, J. F., Mather, Tuolumne Co., Calif. 1923.
 Head, Miss Anna, 2809 Forest Ave., Berkeley, Calif. 1912.
 Heath, Prof. Harold, 181 Ocean View Ave., Pacific Grove, Calif. 1919.
 Hedges, Chas. F., Box 24, Miles City, Mont. 1919.
 Heineman, O. J., 1672 Grove St., San Francisco, Calif. 1908.
 Heller, Edmund, Field Museum Nat. Hist., Chicago, Ill. 1894.
 Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.
 Hendee, Russell W., 51 Poplar St., Brooklyn, N. Y. 1923.
 Henderson, A. D., Belvedere, Alberta, Canada. 1923.
 Henderson, H. N., 216 E. Philadelphia St., Whittier, Calif. 1923.
 Henderson, Prof. Junius, Boulder, Colo. 1909.
 Henderson, Walter C., 8 Magnolia Parkway, Chevy Chase, Md. 1918.
 Hendren, Miss Elizabeth, Occidental, Calif. 1920.
 Henshaw, Judge F. W., 762 Mills Bldg., San Francisco, Calif. 1915.
 *Hersey, F. Seymour, 6 Maple Ave., Taunton, Mass. 1915 (1920).
 Hill, Albert E., 509 Valle Vista Ave., Oakland, Calif. 1925.
 Hill, Grace A., Camp Kearny Hospital, San Diego, Calif. 1922.
 Hillyer, Curtis D., Scripps Building, San Diego, Calif. 1926.
 Hilton, Dr. W. A., Claremont, Calif. 1921.
 Hoffman, Louis E., Box Cor. Benner and Shults St., Los Angeles, Calif. 1920.
 Hoffmann, Ralph, Carpinteria, Calif. 1920.
 Hohfeld, Mrs. Edward, 2500 Broadway, San Francisco, Calif. 1920.
 Holcombe, Miss Frances, 2527½ Hearst Ave., Berkeley, Calif. 1926.
 Holden, Anna H. L., 2835 Divisadero St., San Francisco, Calif. 1924.
 *Holland, Harold M., Box 515, Galesburg, Ill. 1901 (1920).
 Holliger, Charles Daniel, M.D., 215 Commercial Svgs. Bank Bldg., Stockton, Calif. 1925.
 Holman, F. C., care Savings Union Branch, Mercantile Trust Co., San Francisco, Calif. 1914.
 Homer, Mrs. W. H., Jr., 1625 S. Fifth St. East, Salt Lake City, Utah. 1924.
 *Hoover, Prof. Theodore J., Box A, Stanford University, Calif. 1898 (1916).
 Horsfall, R. Bruce, R. 6, Box 80, Portland, Ore. 1914.
 Houghton, John D., 152 Suffolk Rd., Chestnut Hill, Mass. 1922.
 Howard, Miss Hildegard, 973 N. Normandie Ave., Los Angeles, Calif. 1924.
 Howard, O. W., 9th and Olive Sts., Los Angeles, Calif. 1895.
 Howatt, Dr. G. A., Humboldt Nat. Bank Bldg., Eureka, Calif. 1925.
 Howatt, Haven D., 1922 F St., Eureka, Calif. 1924.
 *Howell, Alfred Brazier, Room 61, U. S. Nat. Mus., Washington, D. C. 1908 (1915).
 Howell, Arthur H., 2919 S. Dakota Ave., Washington, D. C. 1916.
 Howell, B. F., Jr., 52 Patton Ave., Princeton, N. J. 1909.
 Howes, Paul G., 46 Auldwood Road, Stamford, Conn. 1910.
 Huber, Wharton, Academy of Natural Sciences, 19th and Race Sts., Philadelphia, Pa. 1915.
 Hudson, L. W., 1554 W. 45th St., Los Angeles, Calif. 1917.
 *Huey, Laurence, Natural History Museum, Balboa Park, San Diego, Calif. 1909 (1921).
 Humphrey, Mary Brown, Univ. of Iowa Library, Iowa City, Iowa. 1924.
 Hungate, J. W., State Normal School, Cheney, Wash. 1924.
 Hunt, Chreswell J., 5943 Rice St., Chicago, Ill. 1919.
 Hunter, J. S., Box 482, San Mateo, Calif. 1903.
 Hurley, John B., 107 So. Almon St., Moscow, Idaho. 1921.
 Husher, Mrs. Gertrude H., 821 S. Hope St., Los Angeles, Calif. 1913.
 Illingsworth, J. F., Univ. Hawaii, Honolulu, T. H. 1896.
 Ingersoll, Albert M., 908 F St., San Diego, Calif. 1896.

- Isham, C. Bradley, 909 Valley Road, Upper Montclair, N. J. 1909.
- Jackson, Dr. Hartley H. T., Biol. Survey, Washington, D. C. 1921.
- Jackson, Ralph W., R.D. 1, Cambridge, Md. 1917.
- Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
- Jacobsen, W. C., 2319 M St., Sacramento, Calif. 1916.
- Jacot, Edward C., Box 462, Prescott, Ariz. 1923.
- Jaeger, Edmund C., 1462 W. 6th St., Riverside, Calif. 1922.
- Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles, Calif. 1901.
- Jay, William, 12 Westview Ave., Mt. Airy, Philadelphia, Pa. 1925.
- Jensen, Parley E., 704 Ogden Ave., Ogden, Utah. 1925.
- Jesurun, Dr. Mortimer, 905 Gaviota Ave., Long Beach, Calif. 1916.
- Jesser, Harvey Hogan, 4232 Montgomery St., Oakland, Calif. 1925.
- Jewett, Stanley G., 582 Bidwell Ave., Portland, Ore. 1909.
- Johnson, A. C., Whittier Nat. Bank, Whittier, Calif. 1919.
- Johnson, Miss Clare E., Room 151, City Hall, San Francisco, Calif. 1921.
- Johnson, H. H., Pittsfield, Me. 1920.
- Johnson, Henry W., 284 East Orange Grove Ave., Pasadena, Calif. 1924.
- Johnson, Dr. Myrtle E., National City, Calif. 1908.
- Jones, Egbert R., Box 338A, Ceres, Calif. 1925.
- Jones, Dr. Lynds, Museum Oberlin Coll., Oberlin, Ohio. 1911.
- Jordan, A. H. B., Everett, Wash. 1911.
- Jordan, Dr. David Starr, Stanford University, Calif. 1902.
- Judson, W. B., 826 Washington Bldg., Los Angeles, Calif. 1894.
- Kaeding, Geo. L., 704 Palm Drive, Glendale, Calif. 1903.
- Kalmbach, Edwin R., Biological Survey, Washington, D. C. 1923.
- Keck, David D., Box 331, Claremont, Calif. 1924.
- Keefer, Miss Mary Bell, 1411 Montana St., El Paso, Texas. 1923.
- Keeler, Mrs. Lauretta B., Box 471, King City, Calif. 1925.
- Kell, Delacourt, Claremont, Calif. 1921.
- Kellogg, Miss Louise, Box 248, Suisun, Calif. 1911.
- Kellogg, Miss Mildred, 2232 Piedmont Ave., Berkeley, Calif. 1921.
- Kellogg, Ralph T., Silver City, N. M. 1916.
- Kellogg, Dr. Vernon L., National Research Council, B and 21st St., Washington, D. C. 1901.
- Kelly, Junea W. (Mrs. G. E.), 1311 Grand St., Alameda, Calif. 1918.
- Kelso, Dr. John Edward Harry, Edgewood, Arrow Lakes, B. C., Canada. 1925.
- *Kennard, Frederick H., Dudley Road, Newton Centre, Mass. 1911 (1916).
- Kennedy, Clarence H., Zool. Dept., Ohio State Univ., Columbus, Ohio. 1912.
- Kennedy, Miss Eveline, 5330 Pasadena Ave., Los Angeles, Calif. 1921.
- Kennedy, H. M., Jefferson Station, Detroit, Mich. 1925.
- Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
- Kibbe, A. S., 1534 Grove St., Berkeley, Calif. 1917.
- Kibbe, Bessie W. (Mrs. A. S.), 1534 Grove St., Berkeley, Calif. 1917.
- Kimball, F. E. A., Tucson, Ariz. 1924.
- Kimball, H. H., Paradise, Ariz. 1909.
- King, Albert H., 3612 N. Griffin Ave., Los Angeles, Calif. 1920.
- King, Benjamin H., 1215 Lakeshore Drive, Coeur d'Alene, Idaho. 1921.
- King, S. Edith, 1604 Maltman Ave., Los Angeles, Calif. 1926.
- Kirby, Dr. Harold, Dept. Zoology, Yale University, New Haven, Conn. 1925.
- Kirn, Albert J. B., Box 157, Somerset, Texas. 1918.
- Kittridge, Joseph, Jr., care of Lake States Forest Exper. Sta., University Farm, St. Paul, Minn. 1915.
- Kloss, Philip, 24 Greenbank Ave., Piedmont, Calif. 1922.
- Kluegel, Mrs. Edward A., Carmel, Calif. 1916.
- Knapp, Elmer, Route No. 2, Troy, Pa. 1924.
- Knickerbocker, Chas. K., 445 N. Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.
- Knowlton, Dr. F. H., U. S. Nat. Museum, Washington, D. C. 1910.
- Kofoid, Prof. C. A., Zool. Dept., Univ. Calif., Berkeley, Calif. 1909.
- Kohler, Louis S., R.D. 2, Paterson, N. J. 1909.
- Kretzman, Prof. P. E., 3705 Texas Ave., St. Louis, Mo. 1914.
- Kuser, John Dryden, Bernardsville, N. J. 1912.
- Labarthe, Jules, care Georgian Manganese Co., Tchiatouri, Georgia, Russia. 1914.
- Laing, Hamilton M., Comox, B. C., Canada. 1926.
- Laing, Mary E., Carmel-by-the-Sea, Calif. 1925.
- La Jeunesse, H. V., 2517 Webb St., Alameda, Calif. 1916.
- Lamb, Chester C., Museum Vert. Zoology, Berkeley, Calif. 1901.
- Lancashire, Sarah (Mrs. J. Henry), Grafton Wood, Manchester, Mass. 1911.
- Lane, Geo. W., Morgan Hill, Calif. 1914.
- Langevin, Elmer, 325 South Broadway, Crookston, Minn. 1922.
- Langstroth, James H., P. O. Box D, Silver City, New Mexico. 1922.
- Lano, Albert, 120 N. Block St., Fayetteville, Ark. 1920.
- Lastreto, C. B., 260 California St., San Francisco, Calif. 1913.
- Lathrop, Oliver A., 101 Beacon St., Boston, Mass. 1925.

- *§Law, J. Eugene, Altadena, Calif. 1900 (1915).
- *§Law, Laura Beatty (Mrs. J. E.), Altadena, Calif. 1915 (1919).
- Layne, J. Gregg, 619 Central Building, Los Angeles, Calif. 1912.
- Lazier, Edgar L., Dept. Zoology, University Calif., Berkeley, Calif. 1924.
- Leach, Frank A., 217 Hillside Ave., Piedmont, Calif. 1917.
- Lee, Mrs. Melicent H., El Cajon, Calif. 1920.
- Lee, Ren M., 231 N. C St., Tulare, Calif. 1922.
- Leffingwell, Dana J., Laboratory of Ornithology, Cornell University, Ithaca, N. Y. 1925.
- Leggett, Dr. R. M., 2140 9th Ave., San Francisco, Calif. 1918.
- Leland, H. J., 200 Currier Bldg., Los Angeles, Calif. 1897.
- Leopold, Aldo, care of Forest Products Lab., Madison, Wis. 1916.
- Libby, Gretchen L., LaVina Sanitarium, Pasadena, Calif. 1911.
- Ligon, J. Stokley, Fort Stockton, Texas. 1914.
- Lillencrantz, H. T., Rancho Las Cimas, Hollister, Calif. 1916.
- Lincoln, Frederick C., U. S. Biological Survey, Washington, D. C. 1922.
- Lindemann, Miss W. C., 1435 8th St., Alameda, Calif. 1922.
- Linsdale, Jean M., Dept. Zoology, University Calif., Berkeley, Calif. 1926.
- §Little, Luther, 1403 Garfield Ave., S. Pasadena, Calif. 1914.
- Littlejohn, Chase, 1226 Warren St., Redwood City, Calif. 1901.
- Livesey, Alice Rose, 373 W. California St., Glendale, Calif. 1921.
- Lloyd, Hoyes, 405 Queen St., Ottawa, Canada. 1923.
- Lofberg, Mrs. Lila McKinley, Edison Camp 62, Big Creek, Calif. 1926.
- Lombardi, Mrs. M. E., 2249 Piedmont Ave., Berkeley, Calif. 1916.
- Lord, James S., St. Stephen, New Brunswick. 1925.
- Loring, J. Alden, Owego, Tioga Co., N. Y. 1914.
- §Love, Guy, Santee, Calif. 1913.
- Low, Mrs. Marion Ware, 1415 Crescent Ave., Hollywood, Calif. 1922.
- Lucas, Lex R., Claremont, Calif. 1925.
- Lueders, Fred H. W., 516 E. Main St., Compton, Calif. 1923.
- Lunt, James C., 109 Liberty St., San Francisco, Calif. 1922.
- Lusk, Richard D., R. 2, Box 722, San Gabriel, Calif. 1915.
- Luther, Clarence H., 38 McIlroy Bldg., Fayetteville, Ark. 1909.
- McIntire, Mrs. Jessie, 2930 Waverley Ave., Los Angeles, Calif. 1926.
- MacIntyre, Mrs. Etta, 1820 Bushnell St., So. Pasadena, Calif. 1926.
- MacKaye, David L., Tulare, Calif. 1922.
- McAtee, W. L., Biol. Survey, Washington, D. C. 1907.
- McBride, Everett, 920 Benton Way, Los Angeles, Calif. 1923.
- McCoy, Frank J., Santa Maria Inn, Santa Maria, Calif. 1923.
- McDaniel, George H., 234 W. Pratt St., Eureka, Calif. 1923.
- McGittigan, Carroll, 2644 Filbert St., San Francisco, Calif. 1921.
- *McGregor, R. C., Bureau of Science, Manila, P. I. 1893 (1916).
- McKeough, Dr. Geo. T., Erie Manor, R.D. 1, Blenkerin, Ontario, Canada. 1922.
- McLain, R. B., Box 132, Hollywood, Calif. 1897.
- McLean, Donald D., Coulterville, Calif. 1916.
- McLean, Robert R., 2904 Granada St., San Diego, Calif. 1922.
- McLellan, Miss Mary E., Calif. Academy of Sciences, San Francisco, Calif. 1919.
- McNeil, Ethel C. E., Pomona College, Claremont, Calif. 1924.
- Mailliard, Ernest C., Federal Reserve Bank, San Francisco, Calif. 1909.
- Mailliard, John W., 230 California St., San Francisco, Calif. 1894.
- Mannington, Joseph A., 1342 Detroit St., Los Angeles, Calif. 1923.
- Marburger, Clifford, Denver, Lancaster Co., Pa. 1925.
- Marshall, Dr. Benj. M., 2036 D St., Eureka, Calif. 1913.
- Martin, Mrs. Bertha Davis, 1639 Golden Gate Ave., Los Angeles, Calif. 1920.
- Martz, Mrs. Warren H., 4601 Welch Pl., Los Angeles, Calif. 1924.
- Massey, Herbert, Ivy Lea, Burnage, Didsbury, Manchester, England. 1909.
- Mead, Mrs. Edwin B., 2618 Etna St., Berkeley, Calif. 1920.
- Meade, Mrs. Calvert, Box 161, Carmel, Calif. 1916.
- Meadows, Donald C., 231 N. Grand St., Orange, Calif. 1919.
- Meeker, Jesse C. A., Box 161, Danbury, Conn. 1907.
- Meister, H. D., Yoakum, Texas. 1909.
- Merritt, Miss Louisa P., P. O. Box 315, Pasadena, Calif. 1925.
- *§Mershon, W. B., Saginaw, Mich. 1911 (1919).
- Mestre, Harold, Fresno State College, Fresno, Calif. 1925.
- Mexia, Mrs. Ynes, 401 Medical Bldg., San Francisco, Calif. 1921.
- Michael, Chas. W., Yosemite, Calif. 1916.
- Michener, Harold, 418 Elm Ave., Pasadena, Calif. 1924.
- Middleton, R. J., Jeffersonville, Pa. 1918.
- Mikesell, Mrs. H. B., 1633 Addison St., Berkeley, Calif. 1924.
- Miller, Alden Holmes, 6066 Hayes Ave., Los Angeles, Calif. 1923.
- Miller, Mrs. Delphia S., 1523 Tonawanda Ave., Los Angeles, Calif. 1921.
- Miller, Frederic W., 935 S. Gaylord St., Denver, Colo. 1922.

- Miller, Dr. Loye Holmes, S. Branch, Univ. Calif., Los Angeles, Calif. 1905.
- Miller, Mary Mann, 5928 Hayes Ave., Los Angeles, Calif. 1920.
- Miller, Dr. R. C., Univ. of Wash., Seattle, Wash. 1921.
- Miller, W. De Witt, Amer. Museum Nat. Hist., New York, N. Y. 1909.
- § Mitchell, H. H., Prov. Museum, Normal School, Regina, Sask., Canada. 1915.
- Mitchell, Mrs. Irving J., 1127 W. 20th St., Los Angeles, Calif. 1924.
- Mitchell, Dr. Walton I., Paonia, Delta Co., Colo. 1909.
- Mix, Mrs. Arthur J., 1915 W. 8th St., Los Angeles, Calif. 1922.
- Moffitt, James, 1825 Broadway, San Francisco, Calif. 1917.
- Monk, Harry C., Avoca Apts., Nashville, Tenn. 1925.
- Moore, Miss Nellie, 122 Falcon Ave., Long Beach, Calif. 1915.
- Moore, Robert T., 505 Slavin Bldg., Pasadena, Calif. 1911.
- Moran, R. B., 1318 S. Gramercy Place, Los Angeles, Calif. 1897.
- More, R. L., Vernon, Texas. 1911.
- Morley, Prof. S. Griswold, 2635 Etna St., Berkeley, Calif. 1916.
- Morse, Geo. W., 318 E. 9th St., Tulsa, Okla. 1922.
- Mull, Mrs. Bert F., Foothill Boulevard, Glendora, Calif. 1925.
- Mullen, James L., 1264 Logan Ave., Salt Lake City, Utah. 1915.
- Munro, J. A., Okanagan Landing, B. C., Canada. 1914.
- Murie, Olaus J., 219 7th Ave. S., Moorehead, Minn. 1913.
- Musgrave, Ethel Weatherford (Mrs. M. F.), Box 765, Phoenix, Ariz. 1921.
- Myers, Earl H., 2234 Atherton St., Berkeley, Calif. 1926.
- Myers, Mrs. H. W., 311 N. Ave. 66, Los Angeles, Calif. 1912.
- Myers, Mabel Adelaide, 617 W. Center St., Anaheim, Calif. 1922.
- *Nace, C. A., 171 W. Santa Clara St., San Jose, Calif. 1920 (1920).
- Nash, Herman W., Box 264, Pueblo, Colo. 1922.
- Naumburg, Mrs. Walter W., Hotel St. Regis, 5th Ave. and 55th St., New York City, N. Y. 1922.
- Neff, Johnson A., Dept. Horticulture, O. A. C., Corvallis, Ore. 1920.
- Neilson, Mrs. Katherine, 1419 Versailles St., Alameda, Calif. 1920.
- Neilson, James Alexander, Wheatland High School, Wheatland, Wyo. 1924.
- Nelson, Roy A., Livermore, Calif. 1925.
- Neterer, Inez May, Lake Erie College, Painesville, Ohio. 1926.
- Newhall, Mrs. Chas. S., 2629 Piedmont Ave., Berkeley, Calif. 1916.
- Nice, Mrs. Margaret M., Norman, Oklahoma. 1921.
- Nichols, J. T., Amer. Museum Nat. Hist., New York, N. Y. 1909.
- Nicholson, Donald J., Orlando, Fla. 1911.
- Nicholson, Gordon, W. 7th St., Ontario, Calif. 1919.
- Niedrach, Robert J., 808 S. Gilpin St., Denver, Colo. 1922.
- Nienburg, Miss Matilda V., 2031 Alameda Ave., Alameda, Calif. 1922.
- Noack, H. R., 309 Perry St., Oakland, Calif. 1901.
- Nokes, Dr. I. D., 1120 Marsh-Strong Bldg., Los Angeles, Calif. 1914.
- Norris, Joseph Parker, Jr., 2122 Pine St., Philadelphia, Pa. 1911.
- Norris, Roy, R. R. B. 253, Richmond, Ind. 1911.
- Norton, Arthur H., 22 Elm St., Portland, Me. 1918.
- Oberholser, Dr. Harry C., 2805 18th St., N. W., Washington, D. C. 1904.
- O'Farrell, Mrs. Mabel E., 2403 F St., San Diego, Calif. 1917.
- Ogden, Dr. H. V., 141 Wisconsin St., Milwaukee, Wis. 1924.
- Ohl, H. C., McKittrick, Calif. 1913.
- Ohlendorf, W. C., 524 E. Stewart Ave., Park Ridge, Ill. 1910.
- Olson, Miss Eva M., 630 Ventura St., Pasadena, Calif. 1925.
- Ormsby, Mrs. Oliver S., 5658 Blackstone Ave., Chicago, Ill. 1925.
- Ortega, James L., Yountville, Napa Co., Calif. 1924.
- Orton, L. R., Fillmore, Calif. 1924.
- Osborne, Ernest Glenn, 161 W. 6th St., Claremont, Calif. 1924.
- Osgood, Dr. Wilfred H., Field Museum Nat. Hist., Chicago, Ill. 1893.
- Osincup, Clayton A., 30 W. Montana St., Pasadena, Calif. 1922.
- *Owen, Virgil W., 832 Beacon St., Los Angeles, Calif. 1896.
- Pack, Arthur Newton, 11 Morven St., Princeton, N. J. 1925.
- Page, Paul E., 401 N. Yakima Ave., Tacoma, Wash. 1925.
- Palmer, Miss Elizabeth Day, 1741 Harvard Blvd., Los Angeles, Calif. 1909.
- Palmer, R. H., 207 Hawthorne St., Palo Alto, Calif. 1915.
- *§Palmer, Dr. T. S., 1939 Biltmore St., N. W., Washington, D. C. 1903 (1920).
- Pangburn, Clifford H., care J. Walter Thompson Co., 244 Madison Ave., New York, N. Y. 1920.
- Parcell, Miss Zulema L., 1633 Orange St., Los Angeles, Calif. 1919.
- Parker, Herbert, South Lancaster, Mass. 1911.
- Parmenter, Henry E., 16 Alameda Court, 220 E. Solá St., Santa Barbara, Calif. 1916.
- Paroni, Clelia A., 2904 Regent St., Berkeley, Calif. 1921.
- Patterson, J. E., Box 478, Ashland, Ore. 1922.
- *Patterson, Mrs. Theresa Homet, 544 S. El Molino Ave., Pasadena, Calif. 1926.
- Paul, Prof. J. H., 1320 E. 2d St. S., Salt Lake City, Utah. 1915.
- Paul, Lucius H., 436 Carter St., Rochester, N. Y. 1911.

- Paulson, Martin C., R.D. 5, Nevada, Iowa. 1922.
- Peabody, Lloyd, 300 Globe Bldg., St. Paul, Minn. 1924.
- Peabody, Rev. P. B., 411 Vine St., Wamego, Kansas. 1904.
- Pearson, T. Gilbert, 1974 Broadway, New York, N. Y. 1910.
- Peck, Prof. Morton E., 244 N. 12th St., Salem, Ore. 1909.
- Pellew, Miss Marion J., Box 455, Aiken, S. C. 1923.
- Pember, Karl A., Woodstock, Vermont. 1922.
- Pemberton, J. R., 525 N. Palm Drive, Beverly Hills, Calif. 1900.
- Penney, Chas. G., Ojai, Ventura Co., Calif. 1923.
- Pennock, Chas. J., Kennett Square, Philadelphia, Pa. 1909.
- Perine, Keble Barnum, 2218 Bancroft Way, Berkeley, Calif. 1925.
- Perry, Mrs. Elinor B., 254 Main St., Hayward, Calif. 1924.
- Perry, Henry Joseph, 19 Bay State Road, Boston, Mass. 1925.
- Peterson, Axel L., 1615 California Ave., Bakersfield, Calif. 1925.
- Peterson, Edward, 1756 Morgan Place, Hollywood, Calif. 1925.
- Peterson, Hans C., P. O. Box 396, Reedley, Calif. 1924.
- *Peyton, Laurence, R.D. 2, Fillmore, Calif. 1909 (1922).
- *Peyton, Sidney B., Sespe, Calif. 1913 (1922).
- Phelps, Frank M., 212 E. 4th St., Elyria, Ohio. 1912.
- *§Philipp, Philip Bernard, 220 Broadway, New York, N. Y. 1911 (1920).
- §Phillips, Dr. John C., Knobfields, Wenham, Mass. 1911.
- Pickard, Edith A., 2640 Durant Ave., Berkeley, Calif. 1926.
- *§Pierce, Wright M., Box 343, Claremont, Calif. 1902 (1919).
- Pierpont, Philip, Nordhoff, Calif. 1913.
- Pilsbury, Frank O., 1088 Main St., Walpole, Mass. 1911.
- Pitcher, Mrs. E. C., Route 3, Box 384, Hayward, Calif. 1920.
- Poole, Cecil A., P. O. Box 262, Monmouth, Ore. 1924.
- Pope, E. F., Box 113, El Reno, Okla. 1913.
- Post, Wm. Stone, Bernardsville, N. J. 1925.
- Potter, Miss Jessica A., 1118 Santee St., Los Angeles, Calif. 1922.
- Potter, Laurence B., Gower Ranch, East-end, Sask., Canada. 1925.
- Powell, Miss Helen, Berkeley Inn, Telegraph and Haste Sts., Berkeley, Calif. 1914.
- Pratt, Helen S., 2451 Ridge View Ave., Eagle Rock, Calif. 1920.
- Price, A. E., Grant Park, Ill. 1905.
- Prill, Dr. A. G., Scio, Ore. 1921.
- *Pringle, Miss Cornelia C., 1816 Vallejo St., San Francisco, Calif. 1915 (1922).
- Procter, James Norris, Box 188, Santa Paula, Calif. 1922.
- Purdy, William B., Milford, Mich. 1921.
- Pursell, Wm. McLain, 9 Eton Court, Berkeley, Calif. 1926.
- Quayle, Ernest Harrison, Box 4, Stanford University, Calif. 1924.
- Quillin, Roy W., 1025 Summit Ave., San Antonio, Texas. 1921.
- Rand, Frank L., 1106 Arcade Bldg., St. Louis, Mo. 1922.
- Randolph, Miss Flora A., 2962 Derby St., Berkeley, Calif. 1907.
- Ransom, Webster H., 708 W. 20th Ave., Spokane, Wash. 1921.
- Rathbun, S. F., 217 14th Ave. N., Seattle, Wash. 1904.
- Rawson, Charles I., Oxford, Mass. 1918.
- Ray, Milton S., 118 New Montgomery St., San Francisco, Calif. 1899.
- Record, Miss Gladys E., 44 Fairview Ave., Los Gatos, Calif. 1926.
- Reemer, D. Herbert, 860 N. Michigan Ave., Pasadena, Calif. 1925.
- Reid, Russell, 210 Thayer St., Bismark, N. Dakota. 1921.
- Reis, C. Oscar, 647 Juanita Ave., Los Angeles, Calif. 1917.
- Rett, Egmont J., Santa Barbara Mus. Comparative Oology, Mission Canyon, Santa Barbara, Calif. 1922.
- Rich, Dr. Guy C., 1820 El Cerrito Place, Hollywood, Calif. 1911.
- Rich. Waldo L., Saratoga Springs, N. Y. 1919.
- Richards, E. B., 128 Chester St., Grass Valley, Calif. 1909.
- Richards, Dr. T. W., U. S. N., 1724 P St., N. W., Washington, D. C. 1908.
- Richards, W. W., 112 Market St., San Francisco, Calif. 1915.
- Richardson, Carl, Trail, Oregon. 1925.
- Richardson, Wm., care Walter L. Richardson, R. F. D. 3, Box 243, Porterville, Calif. 1925.
- Richardson, W. D., 4215 Prairie Ave., Chicago, Ill. 1918.
- §Richmond, Dr. Chas. W., U. S. Nat. Museum, Washington, D. C. 1904.
- Richmond, Frank, care Richmond Bros., El Centro, Calif. 1920.
- Rigden, Miss Nellie C., 2019 Lake St., San Francisco, Calif. 1926.
- Rishel, John B., Whittier School, 24th Ave. and Marion St., Denver, Colo. 1925.
- Riley, J. H., U. S. Nat. Museum, Washington, D. C. 1909.
- Rittenhouse, Samuel, 5752 Chesley Ave., Los Angeles, Calif. 1916.
- Ritter, Prof. W. E., Science Service, 20th and B Sts., Washington, D. C. 1901.
- Robb, Wallace H., P. O. Box 98, Belleville, Ont., Canada. 1925.
- Roberts, Dr. T. S., Zoological Museum, Univ. Minn., Minneapolis, Minn. 1909.
- Robertson, Howard, 157 Wilton Drive, Los Angeles, Calif. 1896.
- §Robertson, John McB., Buena Park, Calif. 1913.

- Robertson, Mrs. John McB., Buena Park, Calif. 1920.
- Roe, Mrs. E. D., Pelton Water Wheel Co., 19th and Harrison Sts., San Francisco, Calif. 1919.
- Rogers, Dr. Wallace, 65 Hurt St., Atlanta, Ga. 1925.
- Ross, Roland C., 388 Dearborn St., Pasadena, Calif. 1920.
- Rowan, Prof. Wm., Dept. Zool., Univ. Alberta, Edmonton, Alta., Canada. 1921.
- Rowen, Daniel, Berkeley Inn, Berkeley, Calif. 1925.
- Rowley, Robert C., 1172 W. 29th St., Los Angeles, Calif. 1926.
- Rowley, J., 403 S. 1st St., Alhambra, Calif. 1909.
- Rush, Miss Lora Gertrude, 1607 Walnut St., Berkeley, Calif. 1920.
- Russell, Carl P., P. O. Box 153, Yosemite, Calif. 1923.
- Rust, Henry J., Box 683, Coeur d'Alene, Idaho. 1911.
- Sampson, W. B., 1005 N. San Joaquin St., Stockton, Calif. 1894.
- Sampson, W. F., 215 Market St., San Francisco, Calif. 1926.
- Sanborn, Colin Campbell, Field Museum Nat. Hist., Chicago, Ill. 1924.
- Sanderson, Miss Dorothy, 937 Orange Grove Ave., Hollywood, Calif. 1922.
- Sanford, Dr. Leonard C., 347 Temple St., New Haven, Conn. 1915.
- Sanford, W. H., 919 W. Acacia St., Stockton, Calif. 1915.
- Saunders, Aretas A., 48 Longview Ave., Fairfield, Conn. 1909.
- Saunders, Mrs. E. J., 122 N. Friends Ave., Whittier, Calif. 1925.
- Saunders, Mrs. Kenneth, Creston Road, High Acres, Berkeley, Calif. 1920.
- Saunders, W. E., London, Ont., Canada. 1910.
- Sawyer, Edmund Joseph, Yellowstone Park, Wyoming. 1925.
- Schaefer, Oscar F., 724 Woodbine Ave., Rochester, N. Y. 1917.
- Schenck, W. Egbert, 17 Panoramic Way, Berkeley, Calif. 1924.
- Schenck, Sara M. (Mrs. W. Egbert), 17 Panoramic Way, Berkeley, Calif. 1924.
- Schlesinger, Mrs. Jane L., 64 Fairview Ave., Piedmont, Calif. 1915.
- Schneider, Fred A., care Warren Dried Fruit Co., San Jose, Calif. 1901.
- Schneider, Mrs. G. H., 4618 Kingswell Ave., Los Angeles, Calif. 1921.
- §Schneider, J. J., Box 363, Anaheim, Calif. 1899.
- Schussler, Geo. W., 1345 Oak St., San Francisco, Calif. 1911.
- Slater, William Lutley, 10 Sloane Court, London, S. W., England. 1909.
- Sefton, J. W., Jr., 650 F St., San Diego, Calif. 1923.
- Seymour, Mrs. Geo. H., 101 N. Kennilworth Ave., Oak Park, Ill. 1922.
- Sharp, Clarence S., Escondido, Calif. 1902.
- Sharples, Mrs. J. M., Juneau, Alaska. 1924.
- Sharples, Robert P., West Chester, Pa. 1911.
- Shaw, Prof. W. T., Box 819, Stanford University, Calif. 1911.
- Shelton, Alfred C., Johnston-Shelton Co., Dayton, Ohio. 1909.
- Shepard, John Alden, Route A, Morgan Hill, Calif. 1919.
- Shepherd, A. R., 457 W. Burchett St., Glendale, Calif. 1920.
- Shepherd, Mrs. Hattie E., R. R. 1, Box 73, Redlands, Calif. 1921.
- *§Sherman, Althea R., National, via McGregor, Iowa. 1911 (1916).
- Sherwood, Jack, Box 264, Salinas, Calif. 1923.
- Sherwood, Wm. E., 787 Cross St., Salem, Ore. 1923.
- Shiras, George, 3d, Stoneleigh Court, Washington, D. C. 1914.
- Silliman, Edmund, Alisal and Ryker Sts., Salinas, Calif. 1918.
- Silliman, O. P., 220 Salinas St., Salinas, Calif. 1893.
- Simonds, Dr. Paul E., 304 Loring Bldg., Riverside, Calif. 1922.
- Simpson, Geo. Buchanan, Lake Cowichan, B. C., Canada. 1926.
- Simpson, Roger G., 201 Tunnel Road, Berkeley, Calif. 1924.
- Sinsel, Joseph A., 612 Pleasant Ave., Yakima, Wash. 1924.
- Sismey, Eric Deane, Power House No. 3, Big Creek, Fresno Co., Calif. 1925.
- *Skinner, M. P., N. Y. State College of Forestry, Syracuse, N. Y. 1915.
- Sloanaker, Jos. L., 907 W. Mansfield Ave., Spokane, Wash. 1910.
- Smith, Allyn G., 1825 Hopkins St., Berkeley, Calif. 1909.
- Smith, Austin P., care Hotel Lafayette, Havana, Cuba. 1907.
- Smith, Chas. Piper, 354 So. 10th St., San Jose, Calif. 1923.
- Smith, C. R., 563 42d Ave., San Francisco, Calif. 1917.
- Smith, Miss Emily, Route 1, Box 56, Los Gatos, Calif. 1924.
- Smith, Prof. Frank, 802 Ohio St., Urbana, Ill. 1911.
- Smith, Franklin J., Box 98, Eureka, Calif. 1913.
- Smith, Horace G., 2918 Lafayette St., Denver, Colo. 1914.
- Smith, Napier, Bank of Montreal, Verdun, Quebec, Canada. 1919.
- Snell, Charles H., Box 101, Red Deer, Alberta, Canada. 1926.
- Snyder, Prof. J. O., Box 775, Stanford University, Calif. 1900.
- Snyder, L. L., Royal Ontario Museum of Zoology, Bloor St. and Avenue Road, Toronto, Ont., Canada. 1924.
- Spaulding, Prof. M. Herrick, Agr. Coll., Bozeman, Mont. 1918.
- Spaulding, Manfred Kenwood, Box 984, Westwood, Calif. 1924.
- Sprot, George Doveton, Cobble Hill, Vancouver Island, B. C. 1925.

- Stacey, John William, 645 Leavenworth St., San Francisco, Calif. 1921.
- Stafford, John LeMoyné, Box 128, Gresham, Ore. 1924.
- Stahl, Charlotte, 955 So. Alvarado St., Los Angeles, Calif. 1924.
- Stansell, S. S., 2345 Spring St., Paso Robles, Calif. 1925.
- Steinbeck, Wm. P., 611 Bristol Ave., Stockton, Calif. 1897.
- Stephens, T. C., Morningside College, Sioux City, Iowa. 1914.
- Stephenson, Miss Omie, Monte Vista, Colo. 1922.
- Stock, Mrs. Chester, 2841 Forest Ave., Berkeley, Calif. 1924.
- Stoddard, H. L., Beachton, Grady Co., Ga. 1914.
- Stone, D. D., R.D. 3, Oswego, N. Y. 1909.
- Stone, Geo. E., Box 371, Carmel, Calif. 1912.
- Stone, Harry Herbert, Jr., P. O. Box 101, Sturbridge, Mass. 1925.
- Stone, Dr. Witmer, Academy Nat. Sciences, Logan Circle, Philadelphia, Pa. 1924.
- Stoner, Emerson A., Box 444, Benicia, Calif. 1918.
- Storer, Miss Mary S., 467 San Pablo Ave., Fresno, Calif. 1914.
- Storer, Prof. Tracy I., University Farm, Davis, Calif. 1910.
- Stormont, W. P., 214 No. Ave. 53, Los Angeles, Calif. 1917.
- Stow, Harry P., 1617 Central Ave., Alameda, Calif. 1921.
- Streator, Clark P., 16 Mason St., Santa Cruz, Calif. 1919.
- *§Strong, W. A., 41 Grand Ave., San Jose, Calif. 1912 (1920).
- Strong, Wm. Duncan, care Dept. of Anthropology, Univ. of Calif., Berkeley, Calif. 1921.
- Stuart, Geo. H., 3d, 923 Clinton St., Philadelphia, Pa. 1913.
- Stuart, Morton, U. S. Forest Service, Santa Barbara, Calif. 1924.
- Suffel, Shumway, 105 So. Madison Ave., Pasadena, Calif. 1926.
- Sugden, J. W., 47 S. 8th W. St., Salt Lake City, Utah. 1915.
- Summer, E. L., Jr., 1343 So. Palomares St., Pomona, Calif. 1924.
- Sutton, George Miksch, State Game Commission, Harrisburg, Pa. 1924.
- Swales, B. H., U. S. Nat. Museum, Washington, D. C. 1898.
- §Swarth, Harry S., Museum Vert. Zool., Berkeley, Calif. 1897.
- Sweeney, Joseph A., U. S. Forest Service, Nenzel, Neb. 1912.
- Swenk, Prof. Myron Harmon, 1410 N. 37th St., Lincoln, Neb. 1916.
- Sykes, Mildred E., 3915 S. Vermont Ave., Los Angeles, Calif. 1924.
- Taft, Elsey R., Banning, Calif. 1925.
- Tanner, V. M., Brigham Young University, Provo, Utah. 1919.
- Tate, Ralph C., Kenton, Okla. 1924.
- Taverner, P. A., Zool. Div., Geol. Survey, Ottawa, Ont., Canada. 1909.
- Taylor, E. F., Grass Valley, Nevada Co., Calif. 1910.
- Taylor, Mrs. H. J., 2813 Channing Way, Berkeley, Calif. 1920.
- Taylor, Jesse H., Box 125, Eagle Rock, Calif. 1919.
- Taylor, Lionel V., Kelowna, B. C., Canada. 1921.
- Taylor, Dr. Walter P., 1746 E. Fifth St., Tucson, Ariz. 1905.
- Teachenor, Dix, 437 W. 60th St. Terrace, Kansas City, Mo. 1922.
- Tenney, Vernon L., 2536 Etna St., Berkeley, Calif. 1922.
- Terrill, L. McL., 44 Stanley Ave., St. Lambert, Que., Canada. 1911.
- Test, Dr. Louis A., 222 North St., W. Lafayette, Ind. 1908.
- *§Thayer, John E., Box 98, Lancaster, Mass. 1906 (1914).
- Thomas, Geo. C., 3d, 1014 Crescent Drive, Beverly Hills, Calif. 1922.
- Thompson, Albert E., Box 712, Blythe, Calif. 1923.
- Thompson, Frederick, P. O. Box 720, Mill Valley, Calif. 1925.
- Thompson, Mrs. H. R., 817 S. Spring St., Los Angeles, Calif. 1922.
- Thompson, J. Walcott, 527 E. 1st S. St., Salt Lake City, Utah. 1918.
- Thomson, Miss Isabel A., 5939 Shafter Ave., Oakland, Calif. 1918.
- Thowless, Herbert L., 255 Fourth St., Newark, N. J. 1919.
- Tindall, Charles W., 912 N. Noland St., Independence, Mo. 1920.
- Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Pa. 1909.
- Tonkin, George, Biol. Survey, 211 P. O. Bldg., Berkeley, Calif. 1920.
- Torrey, Frederic C., 1 Canyon Road, Berkeley, Calif. 1921.
- Townsend, Dr. Charles W., Ipswich, Mass. 1925.
- Trapier, Paul E., 3672 Mentone Ave., Palms, Calif. 1926.
- Treganza, A. O., 522 S. 13th St. E., Salt Lake City, Utah. 1907.
- Treganza, Mrs. A. O., 522 S. 13th St. E., Salt Lake City, Utah. 1915.
- Trenor, Thomas, Hotel Congress, San Francisco, Calif. 1913.
- Trescot, E. B., R.D. 4, Box 221, Petaluma, Calif. 1915.
- Trost, Henry, 475 29th St., San Francisco, Calif. 1924.
- Trumbull, J. H., 39 Farmington Ave., Plainville, Conn. 1911.
- Tucker, Miss Estelle, Box 218, Yosemite, Calif. 1926.
- Turnbull, James Douglas, 2065 48th Ave. West, Vancouver, B. C. 1923.
- *Tyler, John G., P. O. Box 173, Fresno, Calif. 1905 (1920).
- Tyler, Dr. Winsor M., 522 Massachusetts Ave., Lexington, Mass. 1914.

- Unglish, W. E., Gilroy, Calif. 1910.
 Urner, Charles Anderson, 613 Cleveland Ave., Elizabeth, N. J. 1925.
 Van Dellen, Daniel, 48 Maple St., Salinas, Calif. 1925.
 §Van Rossem, Adriaan J., 514 Lester Ave., Pasadena, Calif. 1909.
 *Van Straaten, H., Het Veldhuis, 8 Denneweg, Velp, Holland. 1918 (1919).
 Von Lengerke, Justus, 257 Highland Ave., Orange, N. J. 1925.
 Varick, Wm. Remsen, San Marcus Bldg., Santa Barbara, Calif. 1923.
 Voorhies, Mrs. R. K., 4939 Pasadena Ave., Los Angeles, Calif. 1926.
 Vorhies, Prof. Chas. T., Univ. Ariz., Tucson, Ariz. 1916.
 Vignos, Blanch, 667 So. Carondelet St., Los Angeles, Calif. 1926.
 Wagner, Edward H., 527 San Joaquin St., Stockton, Calif. 1922.
 Wales, Joseph H., 2225 Maiden Lane, Altadena, Calif. 1925.
 Walker, Alex., Tillamook, Ore. 1911.
 Walker, Ernest P., Biol. Survey, Juneau, Alaska. 1910.
 Walker, Geo. R., R. F. D. 3, Murray, Utah. 1926.
 Walker, P. Smith, 2127 Cypress St., Vancouver, B. C., Canada. 1926.
 Wanzel, James O., Route 3, Box 1086, Oakland, Calif. 1921.
 Ward, F. H., 18 Grove Place, Rochester, N. Y. 1915.
 Warmer, Charles A., 1310 Baker-Detwiler Bldg., Los Angeles, Calif. 1920.
 Warmer, Mrs. Edna R., 1310 Baker-Detwiler Bldg., Los Angeles, Calif. 1921.
 Warren, E. R., 1511 Wood Ave., Colorado Springs, Colo. 1909.
 Waterhouse, John Thomas, care Alexander and Baldwin, Ltd., Honolulu, T. H. 1921.
 Weber, J. A., 151 Grand Ave., Leonia, N. J. 1915.
 Webster, Frederick S., 954 N. Van Ness Ave., Hollywood, Calif. 1925.
 Wegeforth, Dr. Harry M., 210 Maple St., San Diego, Calif. 1920.
 Weiser, Charles S., 101 W. Springettsburg Ave., York, Pa. 1920.
 Welch, L. W., 1845 Olive Ave., Long Beach, Calif. 1911.
 Welsh, Joseph, Pasadena Hdw. Co., Pasadena, Calif. 1917.
 Werner, Miss Selma, 2085 Sacramento St., San Francisco, Calif. 1925.
 Wetmore, Dr. Alexander, U. S. National Museum, Washington, D. C. 1909.
 Weydemeyer, Winston, Agricultural Substation, Moccasin, Montana. 1926.
 Wheeler, Mrs. J. W., 403 15th Ave. N., Seattle, Wash. 1912.
 Wheeler, Roswell S., 3815 Park Blvd., Oakland, Calif. 1894.
 White, F. B., Concord, N. H. 1926.
 White, Halsted G., 528 San Luis Road, Berkeley, Calif. 1914.
 Whitney, Miss Margaret W., 1563 N. Raymond Ave., Pasadena, Calif. 1919.
 Whittle, Charles L., 50 Congress St., Boston, Mass. 1922.
 Widmann, Berthold, 4621 Wesley Ave., Los Angeles, Calif. 1923.
 Widmann, O., 5105 Enright Ave., St. Louis, Mo. 1904.
 Wilder, H. E., Carlotta, Humboldt Co., Calif. 1909.
 Willard, B. G., 51 Fresh Pond Parkway, Cambridge, Mass. 1910.
 *§Willard, F. C., Farmingdale, Long Island, N. Y. 1905.
 Willett, Geo., Ketchikan, Alaska. 1905.
 Williams, Laidlaw O., P. O. Box 665, Carmel, Calif. 1925.
 Williams, Robert W., Tallahassee, Fla. 1914.
 Wilson, Gordon, 1434 Chestnut St., Bowling Green, Ky. 1924.
 Winson, J. W., Box 642, Sumas, Wash. 1925.
 Withey, George C., Deering, N. Dak. 1924.
 Wolfe, Lieut. L. R., Fort Douglas, Salt Lake City, Utah. 1921.
 Wood, Dr. Casey A., care The Librarian, McGill University, Montreal, Canada. 1916.
 Wood, Dr. Clifford H., Glendora, Calif. 1922.
 Wood, Mrs. Mildred Tiffany, Hyampom, Trinity Co., Calif. 1921.
 Wood, Norman A., Museum Zool., Ann Arbor, Mich. 1916.
 Woodruff, Frank M., Chicago Acad. Sciences, Chicago, Ill. 1906.
 Woodruff, Regina, Whittier College, Whittier, Calif. 1920.
 Woods, Robert S., 919 S. Bonnie Brae, Los Angeles, Calif. 1920.
 *Wright, Curtis, 900 High St., Oakland, Calif. 1916 (1922).
 §Wright, Frank S., 14 Cayuga St., Auburn, N. Y. 1910.
 Wright, Howard W., 830 N. Orange Grove Ave., Pasadena, Calif. 1921.
 Wright, William S., Nat. Hist. Museum, Balboa Park, San Diego, Calif. 1924.
 *Wyman, L. E., Museum Hist., Sci. and Art, Los Angeles, Calif. 1908 (1920).
 Wythe, Margaret W., Museum Vert. Zool., Berkeley, Calif. 1912.
 Yeates, E. Woodruff, 3978 Washington St., San Francisco, Calif. 1925.
 Yoder, Wm. H., Jr., 4510 N. Carlisle St., Philadelphia, Pa. 1926.
 Yost, Mrs. Myrtle K., 2831 N. Broadway, Los Angeles, Calif. 1923.
 Young, Pauline Rodgers, 1219 N. 6th Ave., Tucson, Ariz. 1918.
 Zahn, Mrs. Francis M. Harmon, 2115 Estrella Ave., Los Angeles, Calif. 1912.
 Zahn, Otto J., 2115 Estrella Ave., Los Angeles, Calif. 1896.
 Zech, Miss Lillian, 335 W. Highland Ave., Redlands, Calif. 1916.
 Zerlang, John, 524 W. Hawthorne St., Eureka, Calif. 1918.
 Zerlang, Lawrence, 524 W. Hawthorne St., Eureka, Calif. 1918.

VIII

Bos-

ave.,

St.

Co.,

way,

Isl-

5.

665,

Fla.

ow-

ash.

924.

Salt

ian,

ada.

alif.

om,

Ann

Sci-

hit-

Los

and,

urn,

rove

um,

4.

and

)).

ool.,

ton

St.,

way,

ve.,

Es-

2.

An-

ve.,

St.,

St.,

For Sale, Exchange and Want Column.—Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address W. LEE CHAMBERS, Drawer 123, Eagle Rock, California.

EXCHANGE.—I have ten volumes of the Auk starting with the rare volume 6 (1889) and running through volume 15, which have been trimmed to a page size of eight and a half by five and a half inches. Otherwise these volumes are in perfect condition, and are bound in new dark blue Holliston buckram. I will exchange the entire ten volumes for volume 6 alone, either bound or unbound, provided it has not been trimmed to less than nine and one-eighth by five and eleven-sixteenths, is in good condition, and is complete including covers.—CLIFFORD FANGBURN, Chappaqua, Westchester County, N. Y.

FOR SALE.—Sunset edition, Dawson's Birds of California, in perfect condition. Price \$125.—JOHN C. FORTINER, Route C, Box 113, Brawley, Calif.

FOR EXCHANGE.—Vols. and odd nos. of O. and O., Osprey, Nidologist, Oregon Naturalist, American Ornithology; Hawks and Owls of the United States, Fisher; Bird Migration in the Miss. Valley, Cooke. WANT Audubon Mag., vol. 2, nos. 1, 5, 7, 8, 9, 10, 11, 12; Oregon Naturalist, vol. 1, nos. 2, 3, 4, 5, 6, 7, 8, 10; vol. 4, nos. 6, 7; O. and O., vol. 8, nos. 3, 4, 9, 10, 11, 12; vol. 10, nos. 8, 9; Oologist, vol. 4, nos. 1, 3, 4; vol. 16, no. 9.—CHAS. W. TINDALL, Independence, Mo.

EARTHWORMS.—I would like to collect earthworms for a worker in this group. There are many Philippine species, and very few of them have been described.—R. C. MCGREGOR, Bureau of Science, Manila, P. I.

WILL EXCHANGE originals of my bird drawings (published, unpublished), in color, "wash" and pencil, for well-made typical skins of common birds, especially most of the smaller forms. Nos. 315 and 332 also wanted.—E. J. SAWYER, Park Naturalist, Yellowstone Park, Wyo.

FOR SALE OR TRADE.—Skins of raptorial birds of this region, especially Horned Owl (*Bubo v. lagophonus*) and Western Goshawk. Am interested in raptorial birds only.—J. L. SLOANAKER, 907 W. Mansfield, Spokane, Wash.

FRENCH OR GERMAN FIELDGLASSES, \$5 up; stereo-prism binoculars, 8-power, \$15 up. Mirakel 3 oz. universal focus monoculars with 20-power attachment that converts it into a microscope; 3½-power \$10; same in 5-power \$12.50. Watch for the new Mirakel 7-power, 7 oz. binocular, \$35. Everything in glasses from a Zeiss down. Satisfaction guaranteed after trial, or money refunded.—J. ALDEN LORING, Box O 132, O-we-go, Tioga Co., N. Y.

Skeletons of birds and mammals, collectable upon order, for sale; or will exchange for sets, or skins of birds and mammals.—E. L. SUMNER, JR., 1343 So. Palmares Street, Pomona, Calif.

WANTED.—To buy first class bird skins of the following families and orders: Anatidae, Columbidae, Limicolidae, Gallinae, Rallidae; especially foreign species. Address—H. B. CONOVER, 6 Scott St., Chicago, Ill.

TO EXCHANGE.—Bird and mammal skins of southern California for specimens from other localities.—PAUL E. TRAPIER, 3672 Mentone Ave., Palms, Los Angeles Co., Calif.

FOR SALE.—Bendire's Life Histories, two volumes complete, as new, cloth bound; price \$18.00.—W. LEE CHAMBERS, Eagle Rock, Los Angeles, Calif.

FOR EXCHANGE.—Clean symmetrical skins as follows: 139, 241, 246, 393e, 394b, 474a, 478, 478c, 498f, 510, 514a, 528, 554a, 557, 567b, 581e, 588b, 618, 646a, 656, 735a, and others.—J. A. MUNRO, Okanagan Landing, British Columbia.

WANTED.—Nidologist, vol. 1, nos. 2, 3 and 6. Have several duplicate copies of Nidologists. What do you need? Will buy, sell or exchange.—WRIGHT M. PIERCE, Box 343, Claremont, Calif.

WANTED.—Skins of Sennett White-tailed Hawk, Aplomado Falcon, adult Duck Hawk, Zone-tailed Hawk. Will exchange, California or Central American species.—LOYE MILLER, 6066 Hayes Ave., Los Angeles, Calif.

List of birds, and the number of each, banded in the Western Province
during the ten months which began March 1, 1925, and ended December 31,
1925.

Xantus Murrelet.....	1	Crow	17	Northern Violet-green	
Pigeon Guillemot.....	8	Dwarf Cowbird.....	7	Swallow.....	12
Glaucous-winged Gull.....	72	Yellow-headed Blackbird..	10	Cedar Waxwing.....	2
Western Gull	2	Red-winged Blackbird		Phainopepla	2
Franklin Gull.....	4	(group).....	103	White-rumped Shrike.....	3
Black Petrel.....	3	Bi-colored Red-winged		California Shrike.....	1
Socorro Petrel.....	11	Blackbird.....	4	Western Warbling Vireo..	10
Mallard	129	Tri-colored Red-winged		Cassin Vireo.....	1
Green-winged Teal	15	Blackbird.....	156	Calaveras Warbler	1
Blue-winged Teal.....	3	Western Meadowlark.....	12	Lutescent Warbler	
Shoveller	5	Scott Oriole	2	(group).....	15
Pintail	62	Arizona Hooded Oriole.....	15	Tennessee Warbler.....	1
Redhead	3	Bullock Oriole	17	Yellow Warbler (group)..	5
Lesser Scaup Duck.....	4	Brewer Blackbird	108	Audubon Warbler.....	95
Coot	3	California Purple Finch ..	107	Pacific Yellow-throat.....	1
Killdeer	4	Cassin Purple Finch.....	15	Long-tailed Chat.....	4
Bob-white	4	California Linnet	2206	Pileolated Warbler	
California Quail	53	Willow Goldfinch.....	135	(group).....	22
Valley Quail.....	18	Green-backed Goldfinch..	80	Western Mockingbird.....	88
Gambel Quail.....	1	Pine Siskin.....	3	Palmer Thrasher.....	5
Mourning Dove.....	69	Vesper Sparrow (group)	3	California Thrasher.....	18
White-winged Dove.....	2	Savannah Sparrow		Cactus Wren.....	1
Sharp-shinned Hawk	1	(group).....	1	Rock Wren	5
Cooper Hawk.....	4	Western Lark Sparrow.....	70	Bewick Wren (group).....	24
Western Red-tail.....	2	White-crowned Sparrow ..	55	Western House Wren.....	16
Golden Eagle	2	Gambel Sparrow.....	1652	Sierra Creeper.....	1
Sparrow Hawk	3	Nuttall Sparrow	82	Slender-billed Nuthatch..	1
Barn Owl	21	Golden-crowned Sparrow..	263	White-naped Nuthatch.....	6
Short-eared Owl	3	Western Chipping Spar-		Plain Titmouse	34
Screech Owl (group).....	27	row.....	72	Bridled Titmouse.....	1
Horned Owl (group).....	6	Oregon Junco.....	342	Oregon Chickadee.....	4
Burrowing Owl	10	Sierra Junco.....	298	Mountain Chickadee.....	11
White-headed Woodpecker	4	Point Pinos Junco.....	5	Chestnut-backed Chickadee	
Red-breasted Sapsucker...	3	Shufeldt Junco.....	23	(group).....	8
Red-headed Woodpecker...	6	Pink-sided Junco.....	8	Wren-tit (group)	47
Red-shafted Flicker.....	26	Gray-headed Junco.....	1	Coast Bush-tit.....	9
Western Kingbird.....	1	Song Sparrow (group).....	270	Western Golden-crowned	
Say Phoebe.....	7	Lincoln Sparrow.....	13	Kinglet.....	1
Western Black Phoebe.....	15	Fox Sparrow (group).....	56	Ruby-crowned Kinglet	
Olive-sided Flycatcher.....	4	Spotted Towhee (group)..	173	(group).....	1
Vermilion Flycatcher.....	3	Brown Towhee (group).....	381	Russet-backed Thrush.....	45
Desert Horned Lark.....	1	Green-tailed Towhee.....	38	Hermit Thrush (group)..	61
Stellar Jay	25	Arizona Cardinal.....	9	Eastern Robin	1
Blue-fronted Jay.....	22	Black-headed Grosbeak....	88	Northwestern Robin.....	12
Long-crested Jay.....	24	Lazuli Bunting.....	1	Western Robin.....	102
Coast Jay	14	Western Tanager.....	30	Varied Thrush.....	1
California Jay.....	60	Cliff Swallow.....	76	Western Bluebird.....	5
Arizona Jay	1	Barn Swallow.....	39	Mountain Bluebird.....	23
Oregon Jay.....	1				

Total species and subspecies..... 134

Total individuals

8524

.. 12
.. 2
.. 2
.. 3
.. 1
.. 10
.. 1
.. 1
.. 15
.. 1
.. 5
.. 95
.. 1
.. 4
.. 22
.. 88
.. 5
.. 18
.. 1
.. 5
.. 24
.. 16
.. 1
.. 1
.. 6
.. 34
.. 1
.. 4
.. 11
ee
.. 8
.. 47
.. 9
.. 1
.. 1
.. 45
.. 61
.. 1
.. 12
.. 102
.. 1
.. 5
.. 23